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Dynamics of health state among the 1st course students at Izhevsk State Agricultural Academy

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Abstract: At present stage of society development one of the most urgent problems of higher education is applicants' and students' health state and the ways of its preservation and strengthening. The rate of school-leavers, who have a low level of health increases. Each year the tension of organism compensatory systems increases because of hypodynamia, the increasing educational load, great volume of work using computer, the influence of different psycho-emotional factors. All these factors lead to the ratio of students increase with the difficulties in education, connected with physical and functional state worsening during adaptation to educational loads. ***Materials.*** The dynamics of health state among the 1st course students at Izhevsk State Agricultural Academy according to results of a long-term medical check-up. ***Research methods.*** Information sources analysis and summarizing, thorough medical check-up results analysis, methods of mathematical statistics. ***Results.*** We present the results of long-term medical examinations among the students of the 1st course at Izhevsk State Agricultural Academy. The examinations were held on the basis of polyclinic for students and given to physical culture department of the academy. Owing to the received results the teachers of the department analyze and form educational groups for physical culture lessons taking into account the level of applicants' health state. The extended data of thorough medical check-up results help to organize analysis according to medical groups, diseases and compare city and country youth. We demonstrated the ratio of students from three medical groups: main, preparatory, special, exercise therapy remedial gymnastics (theory), exercise therapy remedial gymnastics (practice). We organized comparative analysis of the results among boys and girls according to medical groups and also among boys and girls from city and country. We defined and presented in percentage the main groups of diseases. ***Conclusion.*** According to the results of a long-term health state dynamics among the students from Izhevsk State Agricultural Academy we revealed its decrease. It was demonstrated in the amount of students increase with health state disorders and who were from the special medical group and also in the dynamics increase of the main students' diseases, both boys and girls.

Keywords: thorough medical check-up, students, medical groups, results analysis, groups of diseases.

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Introduction

Health is the most valuable fortune of a person and society in general. One of the priority objectives of the state is health of nation. Health level of the population nowadays decreases. The amount of schoolchildren, who have health problems increases. Many schoolchildren have vision disorders – myopia, posture disorders – scoliosis, digestive tract disorders. All these disorders are caused by smartphone, the absence of physical culture lessons and sport during the day, and also irrational nutrition. Presumably by the time such children become students they get the range of additional associated illnesses. It is generally agreed that this is connected with unfavorable influence of several ecological, social and economic factors.

In the opinion of some authors satisfactory health state is the main condition for a person's biological and social functions realization and for fundamental self-realization of a personality [4].

According to the range of data, in the average in Russia 55-65% of students have these or that health state disorders. Physical culture at higher educational establishments should be paid attention to according to several reasons. First it provides health state preservation and strengthening, especially among young generation. There appear changes in the sphere of physical culture at higher

educational establishments. They are presented in Federal State Educational Standards, in "The strategy of physical culture and sport development in the Russian Federation till 2030" and other documents. However, the amount of young people with health state disorders, who enter higher educational establishments, doesn't decrease [1].

The problem of physical upbringing content and organization among the students of the special medical group (SMG) is theoretically solved by "The strategy of physical culture and sport development during the period since 2021 till 2030" [5]. This document provides special attention to health state strengthening among the oncoming generation. The strategy is oriented toward the national aim achievement connected with health state and well-being of people preservation. One of the objectives is population involvement into regular physical culture and sport lessons. In order to achieve the aim and realize the objectives of the Strategy priority directions are formed: health and well-being improvement, the level of living increase among population; further educational subject (discipline) "Physical culture" improvement in the system of general, secondary and higher education; providing health improvement of the population by means of adaptive physical culture [5].

At present stage of society development one of the most urgent problems of higher education is applicants' and students' health state and the ways of its preservation and strengthening. The rate of school-leavers, who have a low level of health increases. Physical culture at educational establishments of different levels and especially at a higher educational establishment is one of the main subjects. For the students with poor health it is difficult to adapt to educational conditions at a higher educational establishment. Each year the tension of organism compensatory systems increases because of hypodynamia, the increasing educational load, great volume of work using computer, the influence of different psycho-emotional factors. All these factors lead to the ratio of students increase with the difficulties in education, connected with physical and functional state worsening during adaptation to educational loads. That is why it is extremely urgent to solve the problem of students' necessary health level at all stages of education, the problem of mental and physical working capacity increase in terms of educational activity at a higher educational establishment. According to the data of WHO (World Health Organization) during recent years there is the amount of students increase, who have health disorders, diagnosed as a result of medical check-up. Such students need physical exercises according to special programs. In accordance with some results, 17% of students have different disabilities (considerable part of the whole amount of students) [3]. Each year the amount of the 1st course students of agricultural higher educational establishment, who are included into special medical group, increases [2]. The aim of the present research work is to reveal the dynamics of health state among the 1st course students at Izhevsk State Agricultural Academy according to the results of a long-term medical examination.

The objectives:

1. To analyze and summarize information sources concerning the topic of the research.

2. To reveal the dynamics of health state among the 1st course students at Izhevsk State Agricultural Academy. To analyze the results of medical examinations among the 1st course students.

Research methods: scientific-methodical sources analysis, the results of thorough medical check-up analysis, methods of mathematical statistics.

Results and discussion

Information sources analysis showed that the topic of the research was urgent for many authors [1,2,3,4]. Nevertheless, we didn't find the results of thorough medical check-up among the 1st course students of agricultural higher educational establishment. We also didn't find the analysis of a long-term dynamics of students' health state according to the main groups of diseases, divided according to sex and place of living, in studied by us information sources.

Studying the results of a thorough medical check-up among the students of Izhevsk State Agricultural Academy was held more than 30 years by polyclinic for students in Izhevsk. The students of the 1st course at Izhevsk State Agricultural Academy took part in the research (17-18 years-old).

Medical check-up included analyses, anthropometric measurements, electrocardiogram, consultations of highly specialized doctors and finally students' health group was determined.

It should be noted that the results of medical check-up are important for physical culture department. First of all, they help to teach students, knowing their anamnesis and dividing students into main, special or exercise therapy remedial gymnastics groups. Secondly, it is possible to see a long-term dynamics of the amount of students. They have health state disorders. They are included into all groups, except the main group. Thirdly, it is possible to reveal the main diseases of students from the country and city, both girls and boys.

The results of medical examinations analysis helped to reveal the main groups of diseases of the 1st course students at Izhevsk State Agricultural Academy. All diseases were divided into the groups: high degree myopia; the average degree myopia; cardiovascular diseases, respiratory system, digestive organs, locomotor apparatus, kidneys,

endocrine system, central nervous system diseases and other diseases (for example, dermal).

Fig. 1, 2 present the main groups of diseases among the students of Izhevsk State Agricultural Academy.

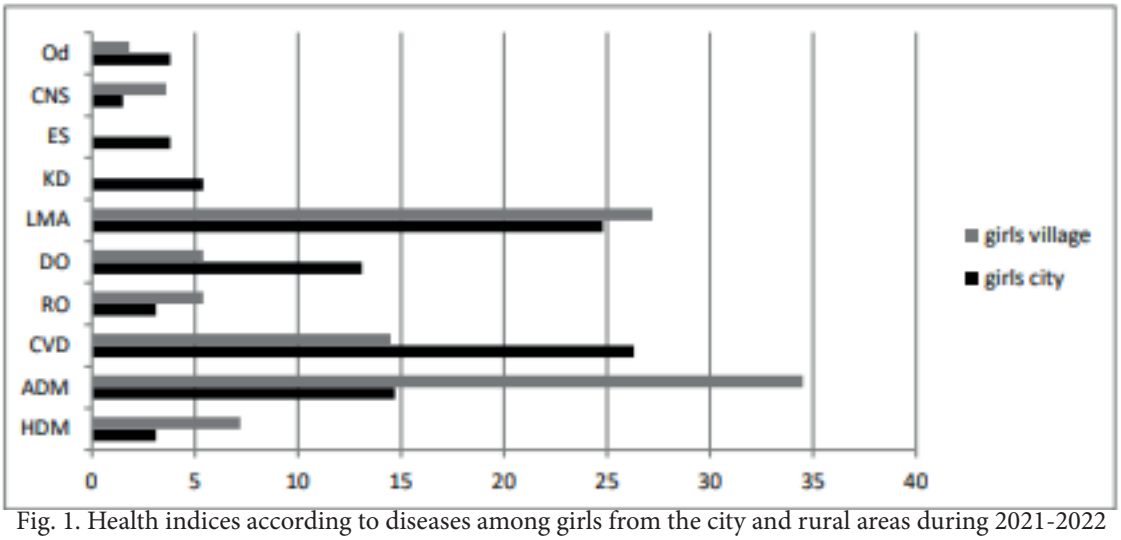

Fig. 1. Health indices according to diseases among girls from the city and rural areas during 2021-2022

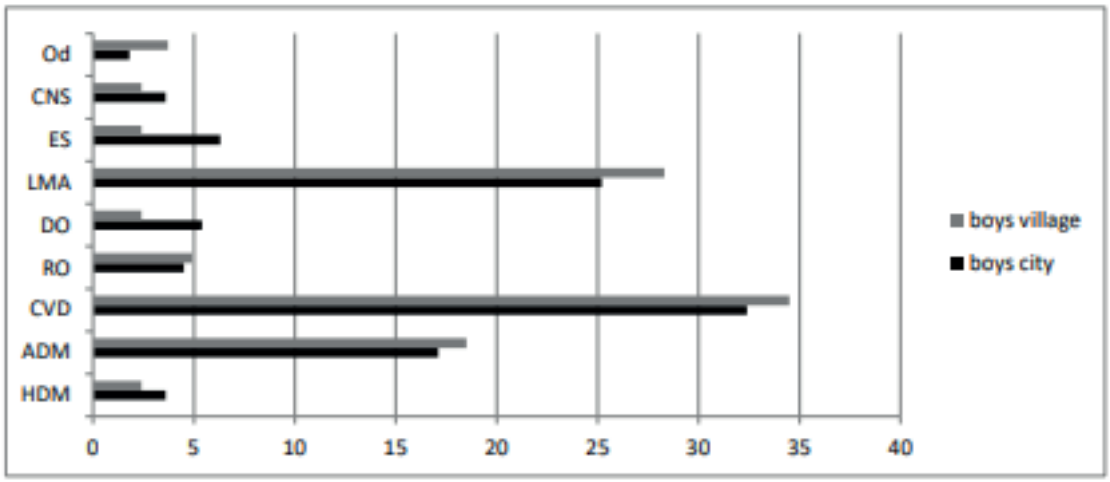

Fig. 2. Health indices according to diseases among boys from the city and rural areas during 2021-2022*

* HDM – high degree myopia, ADM – average degree myopia, CVD – cardiovascular diseases, RO – respiratory organs diseases, DO – digestive organs diseases, LMA – locomotor apparatus, KD – kidneys diseases, ES – endocrine system, CNS – central nervous system, Oth. – other diseases

Fig. 1 and 2 present line diagrams of health indices according to the main diseases of girls and boys from the city and rural areas. We revealed the differences in the character of the diseases. Among the girls from the city the following diseases prevail: cardiovascular system (26%), locomotor apparatus (25%), average degree myopia (15%). Among the girls form rural areas the following diseases prevail: average degree myopia (37%), locomotor apparatus diseases (27%) and cardiovascular disorders (15%).

Among the boys from the city the following diseases prevail: cardiovascular disorders (32%), locomotor apparatus diseases (25%) and average degree myopia (17%). Among the boys from rural areas the following diseases prevail: cardiovascular disorders (35%), locomotor apparatus diseases (29%), average degree myopia (19%).

Pictures 1 and 2 show that there are three prevailing groups of diseases in percentage: cardiovascular diseases, average degree myopia and locomotor apparatus diseases.

Cardiovascular diseases include hypertensive disease, transient cerebral circulation disorders (TCCD), arterial hypotonia, chronic heart disease (CHD), stenocardia, cardiac infarction, myocarditis, pericarditis, cardiac arrhythmia, cardiac decompensation, vascular insufficiency, heart over-tension, rheumatism, cardiac defects, atherosclerosis, vegetovascular dystonia, varicose veins and others.

Visual organs functions disorder – myopia (shortsightedness), which is eye refraction anomaly.

Locomotor apparatus diseases are presented by posture disorders, scoliosis, osteochondrosis, joints arthritis and arthrosis, injuries and etc..

After the main diseases determination all

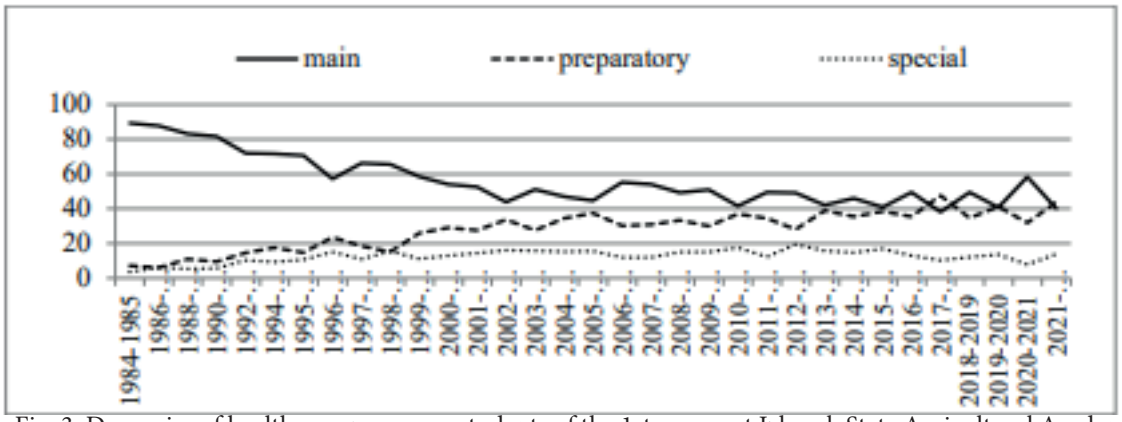

Fig. 3. Dynamics of health groups among students of the 1st course at Izhevsk State Agricultural Academy

Fig. 3 shows that the students, who are included into the main and preparatory health groups prevail, but since 1984 till 2003 we see the values decrease in the main health group. Since 2003 the indices of the main group vary within the range of 45-59%.

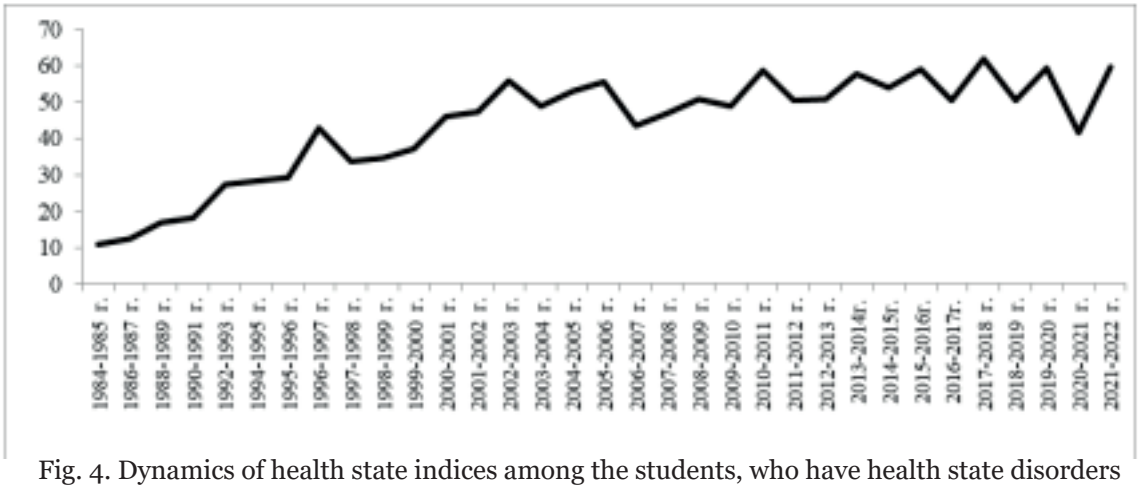

Fig. 4. Dynamics of health state indices among the students, who have health state disorders

Fig. 4 presents the dynamics of the amount of students, who have health state disorders. This group includes the students, who have any health group, except the main group.

As the results show, we reveal steady high amount of students, who health state disorders, starting since 2006-2007 – higher than 40%, table 2 and picture 4 present the results. Since 1984-1985 academic years the amount of students, who have health state disorders was 10,7%, in 2021-2022 academic year it increased till 59,6%. The highest index of this contingent was in 2017-2018 – 61,8%. This year most amount of students, who were included into the preparatory medical group, was 47,6%. Special medical group included 17,6% of students in 2010-2011 and this is the highest index during the all years of observation. Since 2002-2003 after a medical examination doctors recommend exercise therapy remedial gymnastics (practice) and during this academic year there was high percentage of such students – 3,9%. Exercise therapy remedial gymnastics (theory) was recommended for the students, who had considerable disorders in health state (disability) and pregnant girls; the amount of such students increased in 2001-2002– 5,4%.

Conclusion

We analyzed information sources concerning to the topic of the research, the results of a thorough medical check-up. We presented the results of a medical examination among the 1st course students at Izhevsk State Agricultural Academy- girls and boys from the city and rural areas according the main groups of diseases. According to the results of a long-term health state dynamics among the students from Izhevsk State Agricultural Academy we revealed its decrease. It was demonstrated in the amount of students increase with health state disorders and who were from the special medical group and also in the dynamics increase of the main students' diseases, both boys and girls.

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