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ORGANISM REHABILITATION AFTER COVID-19 WITH GENERAL PHYSICAL TRAINING METHODS

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Abstract

The article discusses methods for increasing physical performance and rehabilitation of the body of people of older age groups (40-55 years old) who have had Covid-19. The use of physical exercises to support the respiratory and cardiovascular systems is suggested. The results of experiments carried out during the pandemic from April-May to August are presented. The experiment involved teachers as one of the most vulnerable groups of the population.

Key words: Rehabilitation, respiratory and cardiovascular systems, physical exercise

Introduction

Today has been established that to counteract Covid - 19, there is a need to use physical exercise, since physical activity is the basis for the prevention of many diseases. With insufficient physical activity or its deficit, the body's resistance to colds and active actions of pathogens decreases. Persons leading a sedentary lifestyle with a lack of physical activity are more likely to suffer from respiratory and circulatory diseases. A special category of people at risk are teachers and students. To maintain the level of health, it is necessary to carry out a set of measures. It has been proven that in people of mental labor, muscle activity causes an effort to flow positive impulses in the cerebral cortex and improves the work of those parts of it that are already included in a certain activity at the moment.

Most of the staff and teachers of higher educational institutions work under conditions of intense mental activity, mental stress, hypokinesia and physical inactivity. Exercise raises emotional attitudes, trains the cardiovascular system, and improves health. People engaged in aerobic exercise have a more economical heart, better ventilation of the lungs, and develop the skill of correct breathing while walking [1].

Since teachers belong to one of the vulnerable groups of the population, due to sedentary work, as well, as a result of strict quarantine, they need a special approach to physical training. The physiological

characteristics of this category of persons are distinguished by a decrease in a number of protective functions of the body, immunity, as well as a deterioration in the work of the cardiovascular system and ligamentous apparatus.

Exercise technology is mainly aimed at:

- health promotion;
- hardening the body and improving the vital functions of all its systems;
- strengthening the body's defenses;
- increasing the level of mental and motor performance;
- possible elimination of functional deviations in physical development;
- elimination of residual effects after illnesses;
- acquisition of skills and abilities necessary and acceptable for vacationers for independent educational and training physical culture and sports;
- instilling in a person the conviction of the need to regularly engage in physical culture and sports.

Taking into account the results of this study and based on the general principles of the methodology of physical education in this experiment, we tried to implement the idea of using general physical training based on self-control of the physical state of the body. Many teachers of a non-physical culture university are distinguished by a highly developed ability to overcome oxygen deficiency. They are able to “endure”, be able to “endure” various hypoxemic and hypercapnic shifts, several times higher than similar changes than those of students who have not previously engaged in physical exercise or sports. (Hypercapnia - an increase in the level of carbon dioxide (CO2) in the blood, hypoxemia - a decrease in the oxygen (O2) content. It is known that oxygen must enter the body without interruption and in sufficient quantities, otherwise a decrease in oxygen in the blood (hypoxemia) and the accumulation of carbon dioxide (hypercapnia) lead to the development of a condition called hypoxia. And if hypoxia takes place, then it is already clear that hypercapnia and hypoxemia were also involved, therefore they are considered universal symptoms of respiratory failure.). There are various functional tests that allow you to obtain objective data on the functional state and are useful in practical terms: they characterize recovery processes and provide information for assessing the student's functional readiness for physical exercises [2-4].

The simplest hypoxic tests include the Shtange and Genchi tests [4-6]. They allow us to assess the adaptation of a person to hypoxia and hypoxemia, as they give some idea of the body's ability to withstand a lack of oxygen. In our case, students with high rates of hypoxemic tests tolerate physical activity better.

The fulfillment of some physical exercises, on which a certain result depends to some extent, is largely determined by the level of development of the strength of certain muscle groups in those engaged in physical exercises.

In this regard, physical exercise (health-improving physical culture) is an integral component of rest, health improvement and treatment - all this is one of the factors in leading a healthy lifestyle [5-8].

Research methodology and organization.

Experimental studies were conducted under the constraints associated with the Covid-19 pandemic. Research methods: survey, anthropometric measurements, testing of health indicators (heart rate, reaction to

orthostatic test, study with an oximeter, etc.), Research conducted among teachers and employees of the National University of Uzbekistan showed that 87% of women would like to improve their health , 50% - to lose weight, 50% - to get joy from movement, 31% - to relieve fatigue. The Covid-19 pandemic has made its own adjustments, health indicators have changed, as well as wishes.

During the period of being in quarantine, all the teachers and staff of the university were measured oxygen content in the blood and pulse values. The first studies were carried out in April-May 2020. The research involved 19 female teachers and their families. Unfortunately, it was not possible to avoid infection for the teachers who participated in the research. Most of the teachers (13 people) suffered from Covid-19 in a mild form, i.e. no lung complications, no pneumonia. The second research was conducted between July and August 2020.

The values of the measurement results were averaged and all the teachers were divided into three groups: group 1 - lung oxygen saturation ranged from 89 to 95%, group 2 - lung oxygen saturation ranged from 88 to 93% and group 3 - lung oxygen saturation ranged from 88 to 95 % (tables 1 and 2, fig. 1-3). The measurements were taken in the morning, immediately after waking up and after 20 minutes.

Table 1. Oxygen content immediately after waking up (April-May)

Measurementnumber	Group 1		Group2		Group3	
	Saturation	Pulse	Saturation	Pulse	Saturation	Pulse
1	89	78	88	70	88	78
2	92	80	87	69	89	68
3	93	82	89	75	92	72
4	94	72	94	80	95	78
5	95	81	93	68	95	81

Table 2. Oxygen content 20 minutes after waking up (April-May)

Measurementnumber	Group 1		Group 2		Group3	
	Saturation	Pulse	Saturation	Pulse	Saturation	Pulse
1	91	76	90	76	92	82
2	93	82	89	68	90	77
3	93	78	93	72	94	78
4	95	71	94	78	95	71
5	95	72	96	72	96	98

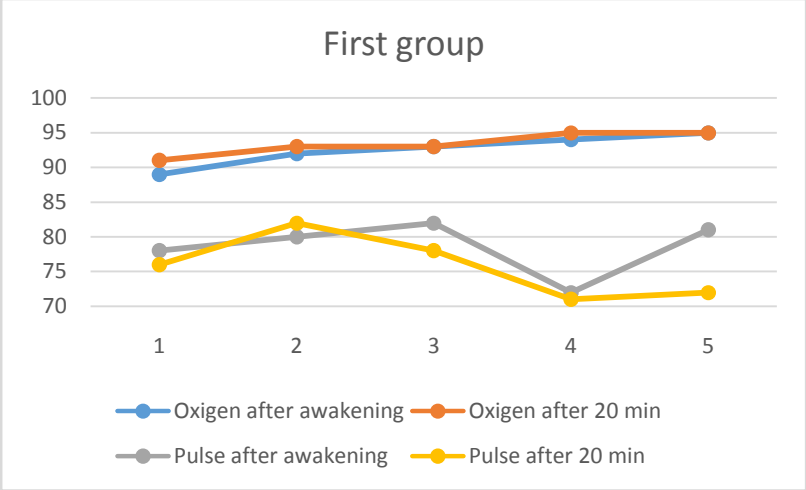

Fig. 1. Group 1st (April - May 2020)

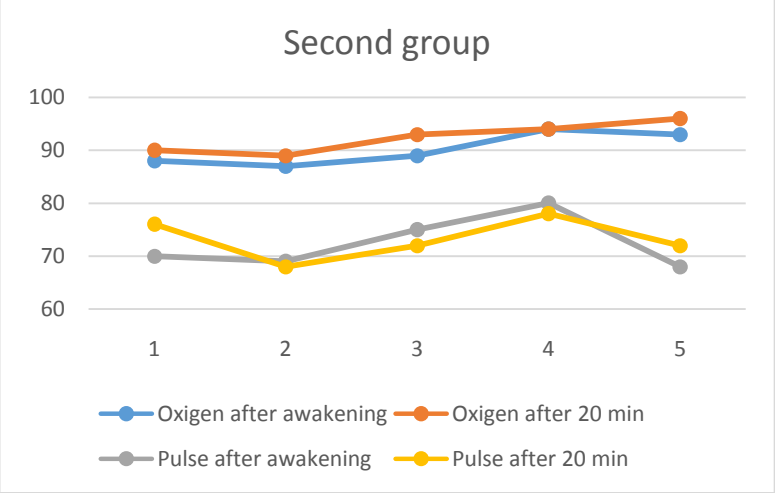

Fig. 2. Group 2nd (April - May 2020)

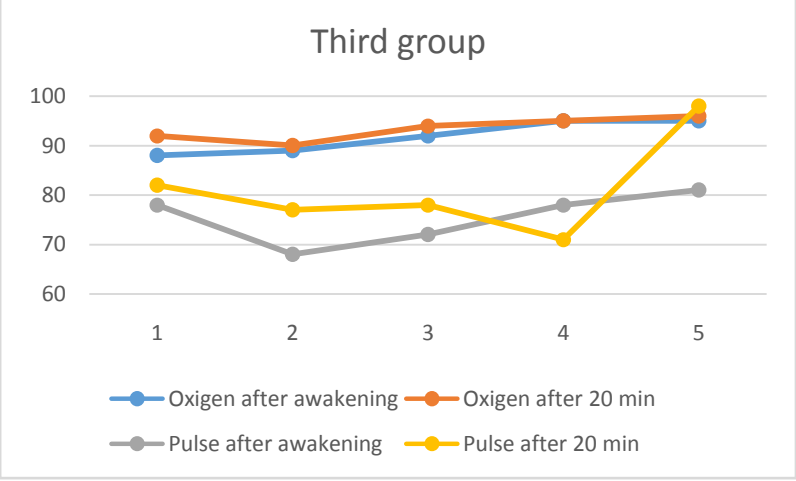

Fig. 3. Group 3rd (April - May 2020)

Table 3. Oxygen content immediately after waking up (August 2020 y.)

Measurementnumber	Group 1		Group 2		Group3	
	Saturation	Pulse	Saturation	Pulse	Saturation	Pulse
1	95	63	95	78	95	62
2	94	61	96	81	96	60
3	97	62	95	87	97	61
4	96	60	95	86	97	60
5	95	61	95	87	97	61

Table 4. Oxygen content 20 minutes after waking up (August 2020 y.)

Measurementnumber	Group 1		Group 2		Group 3	
	Saturation	Pulse	Saturation	Pulse	Saturation	Pulse
1	99	87	98	92	98	89
2	99	92	97	94	99	91
3	99	92	97	97	98	92
4	98	90	98	102	99	90
5	98	88	98	95	99	91

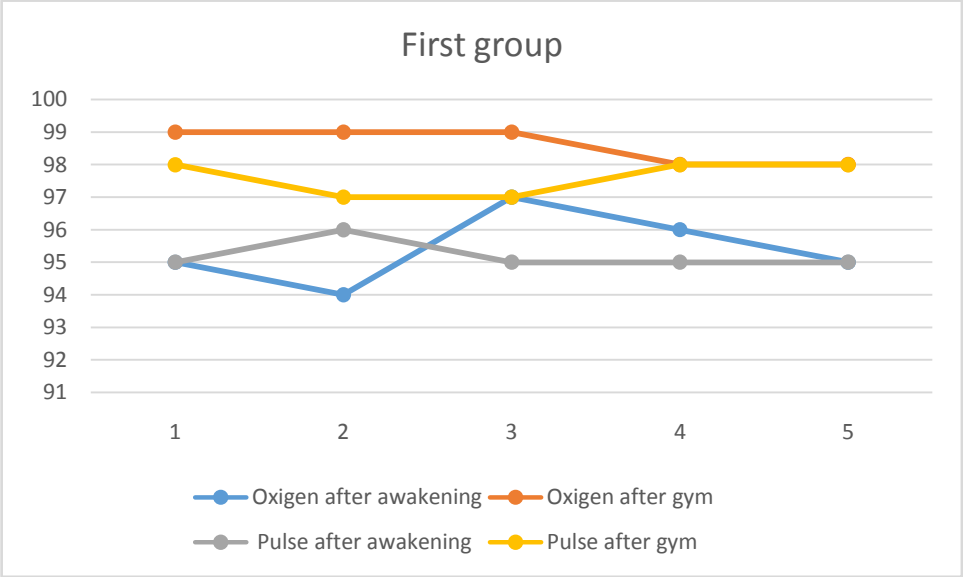

Fig. 4. Group1st (August 2020 y.)

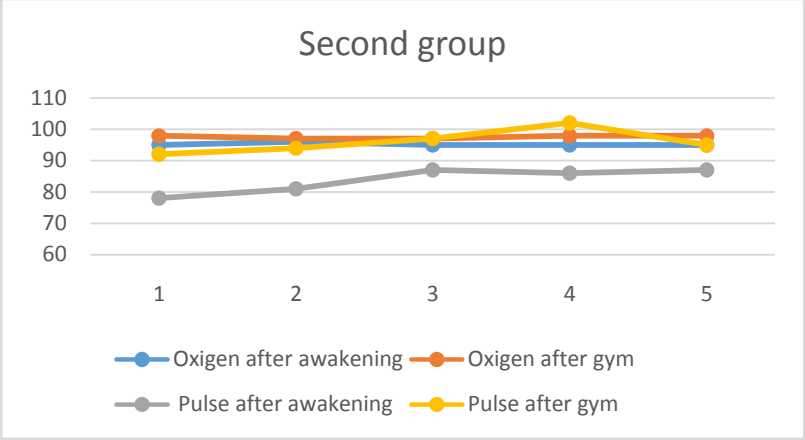

Fig.5. Group 2 (August 2020 y.)

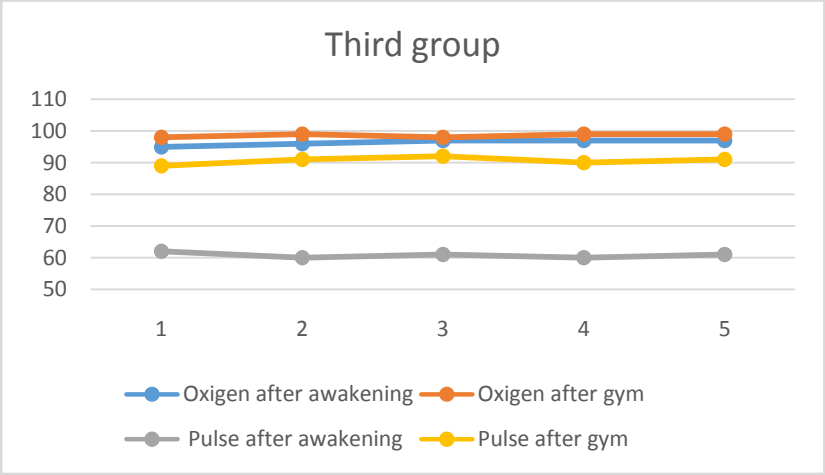

Fig. 6. Group3 (August 2020 y.)

The research involved women of different ages: from 45 to 60 years. The first and second groups included teachers from different faculties, the third group included physical education teachers.

Since, the period July-August coincides with the vacation period and at the same time, a second quarantine was introduced. The teachers were offered a set of exercises to improve well-being and to maintain health. The complex of morning exercises included exercises to improve lung ventilation and increase mobility.

Teachers of the humanities faculties - group 1 led a normal life taking into account quarantine restrictions, groups 2 and 3 of teachers performed morning exercises.

The results of blood oxygen content and pulse were different from the previous ones (Tables 3 and 4).

The graphs (Figs. 4-6) show fluctuations in changes in the oxygen content in the blood and pulse: very sharp drops in indicators in groups 1 and 2, relatively small changes in parameters, which show that exercise can significantly improve oxygen saturation and stabilize the heart rate, which is especially important in case of viral lung lesions. infection during the Covid-19 pandemic.

The most important section of the work being carried out is functional diagnostics, and in particular, testing of physical working capacity, functional readiness, adaptive reserves and other characteristics of the functional state of teachers [6-10]. This applies equally to health-improving physical culture.

Effect of oxygen consumption on overall physical condition.

One of the indicators of physical performance is the potential ability of a person to show maximum physical efforts in static, dynamic and mixed work. Physical performance is associated with a certain amount of muscular work, which can be performed without reducing a given (or established at the maximum level for a given individual) level of the body's functioning, primarily, its cardiovascular and respiratory systems. Since the experiment involved teachers who had an underestimated level of muscle work, complexes of physical exercises were developed for them, including exercises for all muscle groups [10]. The methodology for performing the exercises provided for the stage-by-stage inclusion of all muscle groups in the work, starting with the shoulder girdle and ending with stretching elements, which was aimed at aerobic exercise.

A. Gill in 1929 for the first time pointed out that the ability of muscles to perform mechanical efforts can be assessed by measuring the amount of oxygen absorbed by them during work; the amount of absorption (consumption) of oxygen, in turn, is determined by the state of the cardiovascular system and, in addition, depends on the power of the load performed by the muscles. This dependence is linear: with an increase in the load, the level of oxygen absorption by the body increases in proportion to it, until, finally, upon reaching a certain load power, it becomes constant [10-12]. This was the main goal of the ongoing research.

Results.

The results obtained confirmed that the introduction of physical exercises into the everyday life of teachers significantly increases the quality of life, further growth of the indicators of general physical fitness among the students.

Despite the different sequence of the programs in all experimental groups, at the end of the experiment, there was a significant improvement in the results of saturation and individual functional indicators.

The results of the experiment showed that the training effect of the morning set of exercises changes to a certain extent depending on the aspirations of the performers themselves, which is obviously due to the level of general fitness. So, among those engaged in the 3rd experimental group, in comparison with the 2nd and 1st groups (see Fig. 4-6), a more significant increase in such performance indicators as lung saturation and stabilization of the heart rate in a short time was revealed.

The obtained experimental data on the stages of various programs of physical education, serve as an argument in recommending the introduction of compulsory physical exercises in the everyday life of teachers and significantly increase the quality of life by improving general physical indicators, as well as the body's resistance. This is the most important argument in times of a pandemic like Covid-19.

References

1. Gorbunov S.A., Gorbunov S.S. The implementation of innovative approaches in the system of physical education // Theory and practice of physical culture, 2010, №5. Pp.33-35.

2. Nabiev T.E. The importance of Exercise in maximum Oxygen Consumption.// Proceedings of the 1st International Scientific and Practical Conference «Science, Education, Innovation: Topical Issues and Modern Aspects». Tallinn, Estonia.16-18.12.2020, -pp. 1352-1359.https://www.interconf.top/archive.html

3. Berezina LA, Bystrova OL, Saburkin P.A. Study of interest in physical education classes for university students // In the collection: Modern problems of physical education and life safety in the education system 2015. P. 18-22.

4.Apanasenko G.L. The evolution of bioenergy and human health. St. Petersburg MGP "Petropolis" 1992. 68p.

5. Nabiev T.E., Varlamova L.P. Methodical guidelines "Guidelines for the organization and conduct of monitoring studies of physical health and motor fitness of students." National University of Uzbekistan named after MirzoUlugbek. Tashkent 2011 32 p.

6. Varlamova L.P., Nabiev T.E. "A computer program for screening of physical health and physical fitness of students." Intellectual Property Agency of the Republic of Uzbekistan. Certificate of official registration of the program for electronic computers № 02360. Tashkent 2011.

7.Varlamova L.P., Nabiev T.E. Quantitative Assessment Of Students physical Health.// International Journal of Recent Technology and Engineering (TM) Exploring Innovation, 2019. pp. 5568-5571. / ISSN:2277-:78 (Online)/Reg.No.:C/819981 Published By BEIESP/Impact factor 5.92/https://www.ijrte.org/aims-and-scope/http://www.ijrte.org/download/volume-8-issue-3/.

8.Baevsky R.M., Berseneva A.P. Pre-nosological diagnostics in assessing the state of health // Valeology: diagnostics, means and practice of ensuring health. SPb., 1993. Pp.33-48.

9. Daniel Bressington and other.. Enhanced physical health screening for people with severe mental illness in Hong Kong: results from a one-year prospective case series study. Daniel Bressington, Jolene Mui, Sabina Hulbert, Eric Cheung, Stephen Bradford, and Richard Gray/https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3939815/

10.Program-methodical maintenance of the University students independent physical training/ https://cyberleninka.ru/article/n/program-methodical-maintenance-of-the-university-students-independent-physical-training

11. Sarah Cowley. Health-as-process: a health visiting perspective.https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1365-2648.1995.22030433.x.

9. Nabiev T.E. Organization of the training process in sections for group sports // Young scientist. 2018. №17. Pp. 304-306. URL https://moluch.ru/archive/203/49844/

12. Nabiev T.E., Varlamova L.P.Using computer technologies in the health program students// Abstracts of Uzbek-Israel joint International conference "Science- Technology – Education – Mathematics – Medicine" STEMM. Tashkent 2019, May 13-17, p.110.

Declaration of competing interest

We declare no conflicts of interest.

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