



The influence of functional states on the normative indicators of cross-country running of students before and after the COVID-19 pandemic

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Abstract

Objective of the study was to assess the impact of functional states on the performance of normative indicators of cross-country running of students before and after the COVID-19 pandemic.

Methods and structure of the study. 42 subjects took part in the scientific work (gender - female, average age 19.5 years, health group - main). Group X - students who took the Applied Physical Education course in full-time before the start of the pandemic (duration of the course: 2015-2018); group Y - students who took the course "Applied Physical Education" in full-time and remote form during the pandemic (duration of the course: 2019-2022). To measure the level of fatigue, monotony, satiety and stress, the method "Differential diagnosis of conditions of reduced performance" (DORS) by A.B. Leonova and S.B. Velichkovskaya (modified). A comparative evaluation of the results of a 3000 m cross-country run was also carried out.

Results and conclusions. The conditions of self-isolation, distance learning and quarantine measures during the pandemic had an impact on the physical and mental health of students who had an increased level of monotony, a lower result in cross-country running than in the group of students involved in the traditional mode of study before the pandemic. The results obtained give grounds to assume that the limitation of life activity leads to dysfunction of the motivational-volitional sphere, apathy, boredom, physical and mental fatigue of students and, accordingly, affects their results in long-distance running.

The issue of maintaining health, both physical and psychological, in conditions of self-isolation is still relevant, and therefore there is an increasing need to develop and apply various types of monitoring the results of people's motor activity in various conditions of life.

Keywords: *pandemic, coronavirus infection, students, cross-country, running, stress, fatigue, monotony, distance learning.*

Introduction. In the context of the pandemic, a large number of higher educational institutions were forced to switch to a distance learning format, and many public organizations stopped working, including fitness centers, sports grounds, and stadiums. Maintaining the fitness and health of students in a pandemic situation turned into a real problem, which was exacerbated by social distancing and isolation [2, 3, 6, 7]. The protracted stay at home for a long time seriously complicated the observance of the necessary motor regime of students and, in particular, the fulfillment of long-distance running tasks. It is believed that

the success of this exercise depends on the overall endurance of a person, the consistency and frequency of exercises that increase the level of endurance, as well as its psychological characteristics, in particular the will and motivation of a person.

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X - students who took the Applied Physical Education course in full-time before the start of the pandemic (duration of the course: 2015-2018); group Y - students who took the course "Applied Physical Education" in full-time and remote form during the pandemic (duration of the course: 2019-2022). To measure the level of fatigue, monotony, satiety and stress, the method "Differential diagnosis of conditions of reduced performance" (DORS) by A.B. Leonova and S.B. Velichkovskaya (modified) [4]. A comparative evaluation of the results of a 3000 m cross-country run was also carried out.

Results of the study and their discussion. The difference in the average cross-country running time between the groups of subjects is quite large and amounts to 48 seconds, with the average in group X being 1011 s. and in group Y being 1059 s. (see table).

Normative results of the 3000 m cross-country run of group X and group Y

Time (T, s)/ Subject's no.	X	Y
	Tx, s.	Ty, s.
1	889	914
2	889	970
3	942	972
4	957	978
5	972	981
6	974	983
7	974	1002
8	993	1025
9	996	1042
10	1006	1044
11	1009	1054
12	1013	1065
13	1013	1070
14	1020	1083
15	1026	1090
16	1043	1116
17	1043	1119
18	1056	1120
19	1062	1165
20	1103	1200
21	1127	1260
Tav., s	1011	1059
Δ, s.	48	

This difference is explained by the fact that under the conditions of disability during the pandemic, it was not possible to conduct systematic classes to develop endurance and motor skills, unlike the traditional face-to-face regimen.

Along with this, in the background of self-isolation and other socio-psychological factors, the subjects

may develop some forms of asthenia and disorders of the motivational-volitional sphere. As the performance diagnostic data showed, there is a tendency to a pronounced state of stress, monotony, fatigue and mental satiety in group Y.

From the results of the study, it follows that of the four psychological states presented, monotony is pronounced, which indicates a decrease in conscious control of activity caused by monotonous work and stereotyped actions, and leads to boredom or drowsiness, a desire to change activities. The relationship between fatigue and mental satiety ($r=0.9$) is highlighted, which is caused by the peculiarities of the organization of physical activity during distance learning and the consequences of the isolation mode due to the pandemic, while the intensity of work, increased workload and monotony lead to greater fatigue and increased stress levels. . It can be concluded that the most stressful and relevant aspect of a student's activity during a pandemic is stereotypical physical activity, which leads to mental satiety, a desire for changes in activity.

The influence of mental processes on the physical state of a person is reflected in experiments conducted before the pandemic. The experiment of Bexton and Chiron, carried out on students during their isolation in special boxes under conditions of artificial deprivation, is well known and described. Food intake and physiological administration were carried out on demand. Individuals who took part in the experiment had thought disorders, false sensations, physical and mental fatigue, boredom, leading to a decrease in motivation [5]. Similar results were also confirmed by the studies of F.D. Gorbova, V.I. Myasnikov and V.I. Yazdovsky [1]. The subjects showed physiological changes (depression of the adrenal glands, the development of fatigue, etc.), manifested apathy, boredom, anxiety and fear, increased suggestibility.

The absence of significant connections between the results of cross-country running and the scales of the questionnaire showing the levels of fatigue, monotony, satiety and stress can be explained by the influence of other reasons, rather from the motivational-volitional sphere of the subjects.

Thus, the resulting difference in the results of cross-country running among students can be due not only to a physical factor, but also to an equally psychological one, however, this problem remains not completely solved, it requires continued search for reasons.



Conclusions. The conditions of self-isolation, distance learning and quarantine measures during the pandemic had an impact on the physical and mental health of students who had an increased level of monotony, a lower result in cross-country running than in the group of students involved in the traditional mode of study before the pandemic. The results obtained give grounds to assume that the limitation of life activity leads to dysfunction of the motivational-volitional sphere, apathy, boredom, physical and mental fatigue of students and, accordingly, affects their results in long-distance running.

The issue of maintaining health, both physical and psychological, in conditions of self-isolation is still relevant, and therefore there is an increasing need to develop and apply various types of monitoring the results of people's motor activity in various conditions of life.

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