

# Comparative analysis of motor activity and physical fitness of age people before and after the pandemic

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## Abstract

**Objective of the study** was to assess the level of physical activity and its impact on the indicators of physical fitness of older people before and after the end of the pandemic.

**Methods and structure of the study.** Since 2018, a pedagogical experiment has been conducted at the Faculty of Physical Education of the National Research Tomsk State University to study the effect of physical activity of older people on the duration and quality of their life. Since March 2020, due to the pandemic, organized classes have been suspended due to the high risk of COVID-19. The participants of the experiment were given methodical and practical recommendations for independent physical exercises. Immediately after the resumption of organized classes, a sociological survey and testing of the level of physical fitness were conducted.

**Results and conclusions.** A break in organized physical exercises for older women caused the following changes in their psychophysical state: all participants in the experiment noted a lack of physical activity; in 35% of the subjects during the pandemic, their own weight increased from 2 to 6 kg; 25% experienced a depressed psychological state associated with limited communications and prolonged solitude, and 30% of the participants in the experiment, by the end of the pandemic, noted a significant deterioration in well-being. The reasons for the decrease in the indicators of motor activity of the subjects are associated with irreversible age-related changes in the psychophysiological state of the organism of the participants in the experiment, supplemented by a forced two-year period of motor restrictions, as well as the lack of organized physical exercises with an instructor.

**Keywords:** age group, motor activity, independent studies, restriction, period, organized classes.

**Introduction.** The research results confirm the need for longevity in older people. Among the main motives for the desire to prolong life are the desire to see more (65%) and affection for relatives and friends (60%) [1]. To maintain health, most older people use health-improving procedures, baths and saunas, nutritional supplements, vitamins in their daily lives, follow proper nutrition and prefer to relax in sanatoriums. About 65% of older people devote their free time to watching TV, reading or doing household chores that do not require significant physical effort.

And only about 25% prefer outdoor walks. However, in the last decade, physical exercises have become increasingly popular among this contingent of the population: about 20% prefer an organized form

of exercise and visits to fitness centers, and 60% are convinced of the need for regular physical activity to maintain and improve health.

**Objective of the study** was to assess the level of physical activity and its impact on the indicators of physical fitness of older people before and after the end of the pandemic.

**Methods and structure of the study.** Since 2018, a pedagogical experiment has been conducted at the Faculty of Physical Education of the National Research Tomsk State University to study the effect of physical activity of older people on the duration and quality of their life. [3]. Since March 2020, due to the pandemic, organized classes have been suspended due to the high risk of COVID-19. The participants of the experi-



ment were given methodical and practical recommendations for independent physical exercises. After the removal of covid restrictions, organized classes were resumed and continued in the same format. Immediately after the resumption of organized classes, a sociological survey and testing of the level of physical fitness were conducted.

**Results of the study and their discussion.** A sociological survey of the participants in the experiment (n=35) showed that the level of motor activity during the pandemic decreased in almost all respondents by 40-80% or more. In this regard, it was necessary to find out how the forced restriction of motor activity affected the well-being, health status and physical fitness of the participants in the experiment, as well as what forms of motor activity were used by the subjects on their own, to what extent and with what intensity.

As the survey showed, the main forms of physical activity used by respondents during the period of forced restriction of motor activities were mainly related to the satisfaction of household and physiological needs (hygienic procedures, cleaning of premises, shopping for food, etc.). At the same time, it should be noted that almost all respondents did not use the services of volunteers and purchased the necessary products and goods on their own. Less than half of the respondents (about 40%) used daily walks in the fresh air, lasting from 1 to 2 hours, as physical activity. About 30% of the respondents in the summer months made up for the lack of physical activity by physical labor at their dacha or garden plot.

Unfortunately, for various reasons, only about 25% of the subjects in everyday life used small forms of independent physical exercise, mainly in the form of morning exercises, lasting up to 30 minutes.

The incidence rate of women during the period of forced restriction of motor activity did not exceed the level of the pre-pandemic period of their life. Some surprise was the information about the incidence of COVID-19 among the participants in the experiment; only two representatives of this age group were ill with it, both of them in a mild form.

A sharp transition from physical activity, implemented in the form of two organized physical exercises per week, to a forced restriction of the daily volume of motor actions had a negative impact on the psychophysical state of the participants in the experiment.

Almost all 100% of the respondents felt a lack of physical activity after the introduction of restrictions, which was indirectly reflected in the deterioration of

the general condition of the body and manifested itself in unwillingness to do household chores, weakness, apathy, deterioration in well-being, lack of need for communications and other forms.

A two-year period of forced restriction of motor activity of women of this age group had a negative impact on the psychological state and anthropometric indicators of the participants in the experiment. Thus, 35% of women had a depressed psychological state associated with limited communications and prolonged solitude, and their own weight increased from 2 to 6 kg, 30%, by the end of the pandemic, noted a significant deterioration in well-being. And only 10% of respondents did not feel significant differences in the state of their body before and after the pandemic.

Comparative analysis of materials characterizing the levels of physical fitness of the subjects obtained as a result of testing using three control exercises (long jump from a place, forward bend, standing on a gymnastic bench, flexion, extension of the arms, lying down) in March 2020 before termination organized classes and their continuation in May 2022 showed that most of the participants in the experiment had a significant decrease in performance.

It should be noted that the study materials received in 2022 are not differentiated by the affiliation of the participants to the experimental and control groups, since, regardless of their affiliation, both groups of tested women had a two-year break in organized classes, so they were on an equal footing conditions.

The results of testing speed-strength qualities, flexibility and strength showed that their levels after the resumption of organized physical exercises were far from unambiguous. To a greater extent, the decrease in indicators was noted in the state of speed-strength qualities and, to a lesser extent, in flexibility indicators. Mathematical analysis of the obtained results showed the following: in 62.5% of the subjects, a decrease in the level of development of speed-strength qualities from 1 to 25 cm was noted. At the same time, in 56.25%, the decrease was significantly significant ( $p>0.05$ ); in 25%, the result remained unchanged, in 12.5% of the participants in the experiment, an improvement in the result from 5 to 25 cm was noted in the control exercise.

In the second control exercise, changes in indicators were less pronounced than in the first. After testing using the control exercise, bending forward while standing on a gymnastic bench, the absolute majority of the subjects (88.2%) showed a decrease in the de-



velopment of flexibility after the resumption of organized activities, and only 5.9% of the subjects showed a significant increase in the indicator (+13 cm on average). And here it should be noted that in 88.2% of women of these age groups, changes in the decrease in indicators were noted mainly at the level of a negative trend, and of them, only in 11.8% of those tested, they reached a qualitative level.

Similar results were recorded in the development of strength qualities (flexion, extension of the arms in emphasis). 64.7% showed a decrease in the indicator at the level of a negative trend, for 23.5% the result remained at the same level, an improvement in the indicator, also at the level of a positive trend, was demonstrated by only 7.3% of the participants in the experiment.

**Conclusions.** A significant decrease in the motor activity of the subjects can be explained by two reasons. The first is associated with irreversible age-related changes in the psychophysiological state of the organism of the participants in the experiment, supplemented by a forced two-year period of movement restrictions. The second is the lack of organized physical exercises, which also had a negative impact on their physical condition.

A sociological survey showed that almost all participants in the experiment are more motivated to organize physical exercises under the guidance of an

instructor, since most of the participants in the experiment do not have the necessary conditions for independent exercises, and there are a large number of confusing factors at home, which are for most subjects irresistible for self-study.

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