

## Rehabilitation factors of post-COVID-19 in the population of Uzbekistan

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### ABSTRACT

According to the World Health Organization, scientific data on complications in the recovery period of coronavirus disease obtained. The long-term course of the disease consequences, particularly persistent fatigue, chronic cough, and rapid fatigue during exercise observed. For the study, we organized an online survey to analyze the physiology of recovery in people recovering from COVID-19. Data collection was conducted in the Google form "Survey for the analysis of the physiology of recovery of public health from COVID-19. Data collected from 13 February to 13 March 2021. This study provides a retrospective analysis of gender indicators during the recovery period post-COVID-19, as well as factors that have played an important role in their recovery. The online questionnaire consisted of 15 questions, focusing on 2 important aspects: social (age, gender, location for analysis by region) and physiological (how long COVID-19 has been and how long it has been cured). 31.07% of the participants (17 people) answered that they have chronic diseases (diabetes, hypertension, etc.). However, according to the results of the analysis of the physiological activity of the body before and during recovery post-COVID-19, 79.24% of women (42 out of 53 women) were found to have chronic fatigue, rapid fatigue during exercise, and chronic cough during recovery. For men, this indicator was 52.08% (25 out of 48 men surveyed).

From the results of the survey, we can conclude that a healthy lifestyle (drinking plenty of water, physical activity, proper nutrition), the effectiveness of breathing exercises, and mental support are important in the recovery period after COVID-19, along with medications in treatment standards.

**Keywords:** COVID-19, recovery rate, questionnaire, recovery physiology, factors recovery

### Introduction

Today, one of the most pressing issues in the world is the study of the dynamics of physiological parameters in the recovery period of people in the conditions of the pandemic caused by COVID-19. According to the World Health Organization, scientific data on complications in the recovery period of coronavirus disease have been obtained, in which the long-term course of the disease consequences, in particular, persistent fatigue, chronic cough, and rapid fatigue during exercise have been observed [18]. Currently, the recovery rate from COVID-19 in the world is ~ 60% [19], and in Uzbekistan, the recovery rate is ~ 95% [20]. Over the past few months, many studies on the risk factors, clinical manifestations of COVID-19, and diagnosis have provided the scientific evidence necessary for the treatment and diagnosis of the disease [1, 2, 3, 4]. Numerous scientific studies have been conducted due to the lack of complete data on the features of recovery from coronavirus disease [5, 6,7]. In the human body under the influence of COVID-19, during the recovery period of the organism after recovery from the disease, various physiological indicators are violated, resulting in pathological conditions, resulting in increased morbidity (acquired stress, neurosis, diabetes, obesity) [8, 9, 10]. It should be noted that after COVID-19 Clinical, biochemical and physiological indicators of organisms during the recovery period are the main indicators of their state of health, and the observation of deviations from the indicators is the first sign of the manifestation of chronic diseases. In particular, the COVID-19 pandemic has a strong impact on the stratum of the population with pre-existing chronic diseases. Before the coronavirus pandemic, obesity and diabetes were some of the largest pandemics facing

humanity. COVID-19 was analyzed by Guárico G. and Leonetti F. for an integrated relationship between diabetes and obesity. According to their research, people with diabetes are more likely to have severe cases of the disease as a result of the immune response disorder due to the conflict between COVID-19 and diabetes, as well as high obesity [11]. The age characteristics of the organism are inextricably linked to the stage of the disease and the physiology of subsequent recovery, and China, the United States, and Italy. According to the data, severe coronavirus infection and high mortality rates were found in elderly patients [12, 13, 14]. According to scientific studies, it has been observed that the increase in systemic inflammation and procoagulant activity during the recovery period of the organism after recovery from the disease lasts even after infection [15, 16].

## Methods

Surveys are methods to collect information about knowledge, opinions, behavior or facts from the population. They are economical to perform and provide us with qualitative or semi-quantitative data, which in turn can be used for further research [17]. For study, we organized an online survey to analyze the physiology of recovery in people recovering from COVID-19. The order of formation of the questionnaire. In the study, primary data were collected through an online questionnaire, and a statistical summary of the data was based on Excel programs. Data collection was conducted in the Google form "Survey for the analysis of the physiology of recovery of public health from COVID-19. The questionnaire was analyzed by filling out a questionnaire on "Physiology of recovery from COVID-19" [21]. Sample collection the procedure was to attract as many participants as possible by disseminating the survey more widely through social media. Data were collected from 13 February to 13 March 2021. The online questionnaire consisted of 15 questions, focusing on 2 important aspects: social (age, gender, location for analysis by region) and physiological (how long COVID-19 has been and how long it has been cured). Physiological activity of the organism in the period of the restoration of the sense of smell, the analysis of the physiological nature of sleep, weight).

## Research participants.

101 people (53 women and 48 men) from COVID-19 living in Uzbekistan (n = 101), 48 people from Tashkent city, 15 people from the Navoi region, 7 people from Bukhara region, 6 people from the Tashkent region, 6 people from Samarkand region, 6 people from Fergana region, 4 people from Namangan region, 3 people from Jizzakh region, 2 people from Kashkadarya region, 2 people from Khorezm region, 1 person from Surkhandarya region, 1 person from the Republic of Karakalpakstan took part. The participation of study participants was voluntary and not funded. The survey was conducted in an anonymous format

## Results

According to the results obtained, the disease period of COVID-19 was 3-4 days (4 people) in 4.1% of respondents, 1 week in 5.1% (5 people), 53% 2 weeks (52 people), 16.3% 3 weeks (16 people), 14.3% 4 weeks (14 people), 5.1% 6 weeks (5 people), In 2%, it was found to last 8 weeks (2 people) Table 1.

Table 1.

Research participants		Age	Time to complete recovery from COVID-19 (days)	The course of the disease	%*
n=101	%				
63	62,4	18-35	28±1	asymptomatic	48,3
24	23,8	35-49	31±1	moderate	58,3
11	10,9	50-70	36±3	severe	63,6
3	3,0	70 <	40±0,5	very severe	66,6

\* not among all respondents, when analyzed at the appropriate age range

The course of the disease: asymptomatic - 43.3%, moderate - 37.1%, severe - 12.4%, very severe - 7.2% (2 people did not respond). When asked about the presence of chronic concomitant diseases, 31.07% of the participants (17 people) answered that they have chronic diseases (diabetes, hypertension, etc.). However, according to the results of the analysis of the physiological activity of the body before and during recovery from COVID-19, 79.24% of women (42 out of 53 women) were found to have chronic fatigue, rapid fatigue during exercise, and chronic cough during recovery. For men, this indicator was 52.08% (25 out of 48 men surveyed).

The data presented in Table 2, were obtained when analyzing the answers to the question "Which of the following (s) played an important role in the recovery of the body after COVID-19?" (One or more options could be highlighted in the answer).

Table 2.

Factors that played an important role in the recovery period	women	men	overall (n=101)
	(n=53) %	(n=48) %	%
Consumption of large quantities of water	31 (59,6%)	21 (43,7%)	52 (51,5%)
Physical activity	27 (50,9%)	25 (52,1%)	52 (51,5%)
Proper nutrition	27 (50,9%)	24 (50,0%)	51 (50,5%)
Breathing exercises	25 (47,1%)	20 (41,6%)	45 (44,5%)
Spiritual support	24 (45,2%)	21 (43,7%)	45 (44,5%)
Standard preparations	18 (33,9%)	20 (41,6%)	38 (37,6%)
Timely and normal sleep	16 (30,1%)	15 (31,2%)	31 (30,7%)
Compliance with the agenda	11 (20,7%)	7 (14,5%)	18 (17,8%)

Results of question factors that played an important role in the recovery period: consumption of large quantities of water 51,5%, physical activity 51,5%, proper nutrition 50,5%, breathing exercises 44,5%, spiritual support 44,5%, standard preparations 37,6%, timely and normal sleep 30,7%, compliance with the agenda 17,8%.

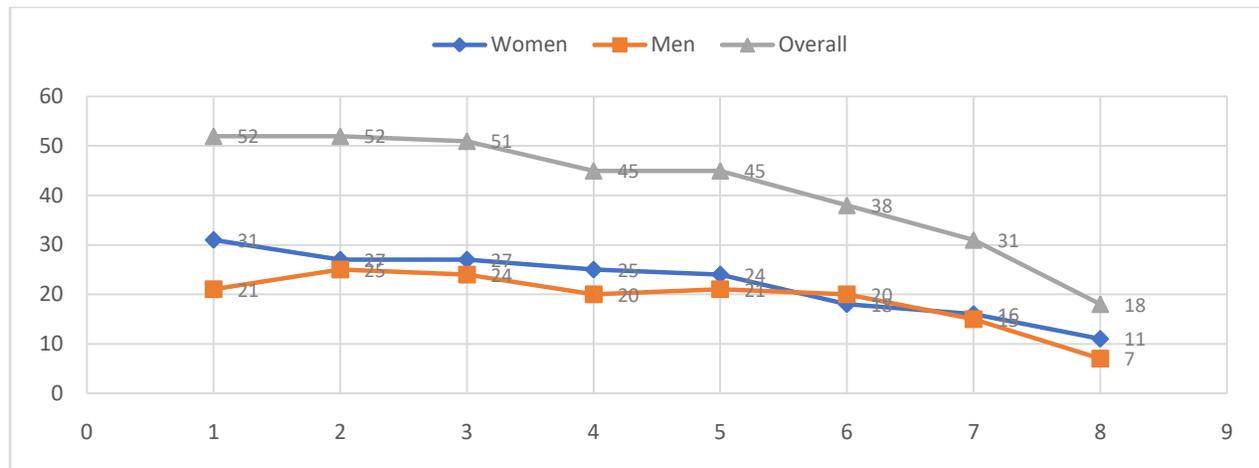


Figure 1.

### Conclusion

This article is the result of the initial analysis and research is ongoing. From the results of the survey, we can conclude that a healthy lifestyle (drinking plenty of water, physical activity, proper nutrition), the effectiveness of breathing exercises, and mental support are important in the recovery period after COVID-19, along with medications in treatment standards (figure 1). During the recovery period of the physiological activity of the organism after COVID-19, their age and retrospective analysis of the factors considered important during the recovery period based on gender, as a promising direction in the prevention of diseases that may occur later, as well as in strengthening the health of the population, which is currently being carried out comprehensively.

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### Ethics

The author confirm that they have thoroughly seen the content of the paper and do not find any conflict of interest and ethical issues.

### Author's contributions

Gulsara B. Akhmedova: Investigation, Formal analysis, Writing - original draft, BakridinZaripov: Conceptualization, Supervision, Writing - review & editing, MirtazaAllamuratov: Resources, Conceptualization, Gulchekhira M-K. Djabbarova: Resources, Visualization, Umidakhon R. Yusupova: Formal analysis Conceptualization.

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