

# Investigation of the Changes in the Physical Parameters of Fitness Members During the Covid-19 Pandemic Process (Sample Province of Kayseri)

MURAT BEKLEYİŞ APAYDIN<sup>1</sup>, BAYRAM KAYA<sup>2</sup>, MUSTAFA KARAKAYA<sup>3</sup>

<sup>1</sup>Municipality of Kayseri, Basketball Coach, KAYSERİ

<sup>2</sup>Public Education Center, Class Teacher, KIRŞEHİR

<sup>3</sup>University of Hacı Bayramı-Veli, PhD Students, ANKARA

Correspondence to Dr. Murat Bekleyiş APAYDIN, Email. [murat\\_apaydin\\_1905@hotmail.com](mailto:murat_apaydin_1905@hotmail.com), Contact: +905435758247

## ABSTRACT

**Background:** The period of Covid 19 epidemic effect not only illness people but also human lives. A lot of People, participating some of activities in gym center from Kayseri. Some of restraint during the covid 19 epidemic by the ministry of interior was affected people who went to fitness center. This situation affected people of Body Weight, Body Mass Index, Body Fat Index unfavorable.

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**Methods:** In this study, 211 participants (male:155, female:56) enrolled in fitness centers in the experimental group were checked for 2 months and their Body Weight (BW), Body Mass Index (BMI), Body Fat Index (BFI) and were recorded twice. The findings obtained were evaluated statistically with the package program

**Results:** In our study, n=55 over the age of 18, 26.1% were female; n=156, 73.9% of the male individuals voluntarily participated. At the end of the study, it was found that there was an increase in BW, BMI and BFI values of male and female participants and that they were significant at the level of paired sample t test findings ( $p < 0.05$ ). Although there was an increase in MMI values, these findings were found to be at the level of ( $p > 0.05$ ).

**Conclusion:** At the end of the research, it was found that individuals who actively continued in fitness centers during the Covid-19 pandemic in Kayseri province experienced restrictions and an increase in BW, BMI, and BFI due to sedentary life.

**Keywords:** Covid 19 Restriction, Physical Parameter, Fitness Center

## INTRODUCTION

The epidemic is the effect of any disease more than the expected course in a society or anywhere<sup>1</sup>. The pandemic is the spread of epidemics to many continents and countries<sup>2</sup>. It is known that there are pandemics spreading between continents throughout history<sup>3</sup>. Some of these pandemics; 664 Plague that have been effective in Britain, Justinian Plague that has been effective in the European continent, Cyprus Plague<sup>4</sup>. Finally, it is a single-chain, positive polarity, enveloped RNA virus that is considered to be COVID-19, which affects the whole world, and is thought to pass through wild animals of unknown etiology that emerged in Wuhan, Hubei, China on December 31, 2019<sup>5,6,7</sup>. It is seen that the virus has different manifestations in humans from a simple upper respiratory syndrome to severe acute syndrome<sup>5,6</sup>. The virus is transmitted to humans through droplets and contact. Coughing, sneezing droplets of sick individuals; sticking of droplets to the surface; contact of hands that are not cleaned after contact with the mouth, nose and eye mucosa are important ways of transmission<sup>7</sup>. Fever, cough and shortness of breath are the main symptoms of the disease<sup>8,9</sup>. The isolation process, which is one of the important steps to control this disease, has many physiological and psychological effects<sup>10,11</sup>. In this process, people's vital activities were limited. These limitations are one of the basic measures of the fight against the epidemic. These restrictions have reduced people's physical activity levels day by day<sup>12</sup>. Insufficient physical

activity is a factor that negatively affects the quality of life of individuals<sup>13</sup>. Athletes who did not train for a long time had negative effects on their cardiovascular, muscle and hormonal systems<sup>3</sup>. In addition, athletes far from long-term sports environments can be negatively affected psychologically<sup>14</sup>. Individuals who go to fitness centers are thought to be affected physiologically and psychologically during the isolation period, as are athletes. It is estimated that the Body Weight (BW), Body Mass Index (BMI), Body Fat Rate (BFR) and Body Muscle Rate (BMI) of individuals who go to the fitness center especially during the pandemic period will be affected. According to<sup>6,27</sup>, coaches have a significant effect on guiding individual.

## MATERIAL & METHODS

**Research Group:** In this study, a total of 211 individuals, with a mean age of  $28.9 \pm 6.2$  years, mean height of  $169.9 \pm 10.1$  cm,  $88.3 \pm 17.3\%$  (f=55) female, and 73.9% (f=156), who actively participated in fitness centers during the period of COVID-19 restrictions, voluntarily participated. **Purpose of the Study:** This study was conducted to investigate the physical changes and exercise addiction levels of individuals who actively participated in fitness and social life centers and were subject to restrictions during the Covid-19 pandemic for 8 weeks, and to find guidance for other studies. **Population:** The study consisted of 211 volunteers who actively attended fitness centers in Kayseri. **Data Acquisition Tool:** In our study, measurements were made to determine body mass index, body fat and muscle

ratio from Tanita MC-780MA device as pre-test and post-test in the 8-week exercise program applied to the participants for physical measurement tests and each measurement was recorded separately. Statistical Analysis: The package program was used to evaluate the findings obtained. For descriptive statistics, the arithmetic mean ( $\bar{x}$ ) and standard deviations (sd) of all data were calculated. Kolmogorov Smirnov test was used to determine whether the variables came from normal distribution. The coefficient of normality assumption was determined as  $(-1.5 < X < +1.5)^{15}$ . As a result of the normal distribution of the data, paired sample t-Test, which is one of the parametric tests, was used. The significance level of the findings obtained from the tests was determined as  $p < 0.01-0.05$

## RESULTS

Table 1: Descriptive Information of Participants

Factor	Variable	f	%
Gender	Female	55	26,1
	Male	156	73,9
Ages	18-28 between	119	56,4
	29-39 between	48	22,7
	40-50 between	33	15,6
	51and above	11	5,2
Marital Status	Married	72	34,1
	Single	139	65,9
Education Status	Secondary Education	82	38,9
	University	101	47,9
	MSc	19	9
Year of exercise	PhD	9	4,2
	0-2 years	120	56,8
	2-4 years	56	26,5
	4 and above	35	16,7

According to the gender variable, the rate of the individuals participating in the that research founded female (n=55) 26,1% and male 73,9%. The marital status of the participants consisted of married individuals (n=72) 34,1% and single individuals (n=139) 65,9%. The mean age of the participants founded between 18-28 years, (n=119) 56,4%; 29-39 years (n=48) 2,7%; (n=33) 15,6% between 40-50 years; (n=11) 5,2% 50 years and over was determined as. Educational status of the participants was determined (n=82) 38,9% secondary school graduates; (n=101) 47,9% university, 9% (n=19) graduate; It is seen that (n=9) 4,2% have a doctorate degree. When the exercise history of the

Table 4: BW, BMI, Fat Percentage, Fat Ratio, Muscle Ratio averages and standard deviation values according to the year in which the participants (n=211) exercised

Training Year		VA	BKI	Fat %	Fat kg	muscular kg
0-2 year (n:120)	Pre-test	85,1±16,2	30±7,7	29,3±9,1	26,6±12,4	59,5±11,9
	Posttest	89,7±17,2	31,2±8,3	30,9±9,1	28,7±12,1	59,8±13,4
2-4 year (n=56)	Pre-test	84,6±13,7	29,7±6,3	28,9±8,2	25,4±13,4	61,4±14
	Posttest	85,1±11,7	29,9±7,1	29,2±7,1	27,5±11,5	61,9±11,2
4 and over (n=35)	Pre-test	76,4±1,2	26,3±4,8	27,3±4,9	25,1±4,4	63,1±3,2
	Posttest	77,7±2,7	26,9±4,4	28,1±3,3	26,7±4,9	64,3±5,4

When is examined that data there is observed that a tendency to increase in BW, BMI, fat and muscle ratios in all age groups according to the exercise history of the participants during the Covid 19 pandemic period.

## DISCUSSION

The Covid-19 pandemic process, which emerged in Wuhan, China in 2019 and affects the whole World<sup>16</sup>, affects people's physical and mental living conditions. It is

participants was examined, (n=120) 56,8% were between 0-2 years; (n=56) 26,5% were between 2-4 years; It was found that (n=35) 16,5 % of them participated in activities for 4 years or more.

Table 2: Mean BW, BMI, Fat Percentage, Fat Ratio, Muscle Ratio and Standard Deviation Values of Male Participants (n=156)

Variable	Mean	t	p
Bki	Pre-test: 29,2±8,7	-6,630	,000
	Posttest: 30,5±9,3		
Fat percentage (%)	Pre-test: 25±7,7	-4,111	,000
	Posttest: 26,4±7,7		
Fat (kg)	Pre-test:25,1±12,8	-5,354	,000
	Posttest: 27,3±13		
Muscle ratio (Kg)	Pre-test:67,8±12,8	-,279	,078
	Posttest 68,2±11,2		
BW	Pre-test:81,3±13,8	-7,172	,000
	Posttest:84,5±15,9		

When the pretest-posttest were compared averages of male participants (n=156) BMI, body fat ratio and fat percentage, it was found that it was significant at the  $p < 0.05$  level. When the mean body muscle ratios of the participants were compared, it was found that it was at the level of ( $p > 0.05$ ) and was not significant.

Table 3: BW, BMI, Fat Percentage, Fat Ratio, Muscle Ratio mean and standard deviation Values of Female Participants (n=55)

Variable	Mean	t	P
Bki	Pre-test: 26,4±6,8	6,937	,000
	Posttest: 29,8±6,3		
Fat percentage(%)	Pre-test: 35,3±7,4	4,868	,000
	Posttest: 37,3±6,9		
Fat (kg)	Pre-test:28,6±11,5	8,372	,000
	Posttest: 31,1±12,3		
Muscle ratio (Kg)	Pre-test: 48,2±6,2	1,269	,212
	Posttest: 48,5±6		
BW	Pre-test: 76,8±15,5	7,719	,000
	Posttest: 79,8±16,8		

It was founded that the female participants (n=55) significant at the  $p < 0.05$  level in the pretest-posttest averages of BMI, body fat ratio and fat percentage, as in the findings of male participants. When the mean body muscle ratios of the participants were compared, it was found that it was at the level of ( $p > 0.05$ ) and was not significant.

thought that individuals who actively continue in fitness social life centers are negatively affected by this restriction and quarantine process. In our current study, it was conducted to examine the physical changes of individuals

who participated in exercise activities in the sports center in Kayseri during this period of quarantine and restriction. Situations such as staying at home during the quarantine period, staying inactive for a long time and interrupting daily routine work can cause some physical and mental problems in individuals<sup>17,18,4,22</sup>. When the physical changes of the participants who started with the circular numbered 001-1.631 dated 22.03.2020<sup>19</sup> and then were suspended from their activities in sports centers subject to restrictions with the circulars issued in various periods were examined, it was found that there was an increase in BW, BMI, fat percentage (kg) and muscle ratios during the restriction periods in female participants (n=55) and there was a significant increase in other variables except muscle ratios (kg) ( $p<0.05$ ) in our study. In male participants (n=156), it was found that BW, BMI, fat percentage showed a tendency to increase in fat(kg) and muscle ratios and there was a significant increase in the level of other variables except muscle ratios variable ( $p<0.05$ ) and similar results were obtained with female participants. The increasing obesity rates in Turkey before the pandemic are stated by experts<sup>20</sup>. It is thought that the continuation of quarantine and restrictions may affect the increase in these rates and diseases due to being overweight.

Although the benefits of regular physical activity for treatment and prevention in diseases such as cardiovascular disease, diabetes types and cancer are known, it is known to be effective in developing features such as lean body weight formation, endurance and flexibility<sup>21,25</sup>. In our current study, when the physical parameters of the participants were examined according to the exercise year, it was observed that the individuals with increased exercise years had improved values in terms of body fat and muscle ratio and that the exercise had an effect on these parameters and that the quarantine and restriction process was effective in increasing the body fat ratio in fitness members<sup>23-28</sup>.

## CONCLUSION

As a result; Although the ongoing epidemic process in the world and in our country negatively affects every aspect of life, it is observed that there is a tendency to physically change negatively in people who actively participate in exercise activities in fitness centers in Kayseri province, and it is thought that these restrictions may cause an increase in obesity rates with the increasing sedentary life in recent years and there will be an increase in the incidence of related diseases.

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