

**LETTER TO THE EDITOR**

# Confinement time due to the COVID-19 disease: An opportunity to promote and engage people in regular physical exercise?

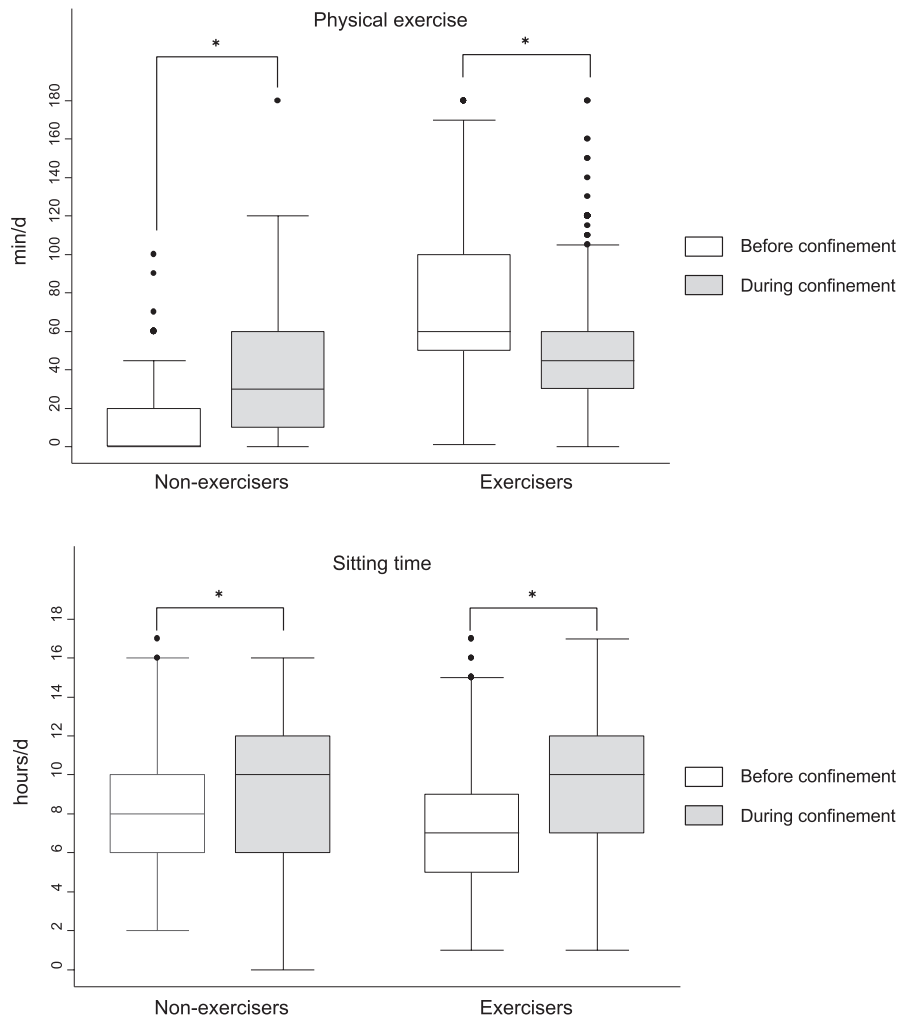
The ongoing Coronavirus disease (COVID-19) has become the world's leading health concern and is causing different social and public challenges. On March 11, 2020, the World Health Organization (WHO) declared the COVID-19 as a pandemic.<sup>1</sup> To date (April 16, 2020) there are 2.07 million confirmed cases of COVID-19 and this disease affects over 185 countries.<sup>2</sup> More than 70 countries have imposed restrictions, including the confinement of the population. In Spain, the second country most affected for the COVID-19 at this moment, the Spanish Government declared on March 13, 2020 the state of alarm, imposing restrictive conditions and strict limitations of movement more than 46.9 million of persons. The confinement of the population was adopted as a safety measure to avoid human-to-human transmission of the virus. However, this measure may lead to reduced regular physical exercise and to increase sedentary behavior, because people are forced to change their physical exercise routines and performing it at home. Under this view, the authors of this paper designed a study with two objectives: (a) to assess the time spent in physical exercise and sitting time before and after the confinement time caused by COVID-19 in the Spanish population, and (b) to assess the interest for the exercise during this confinement time.

We adopted a cross-sectional opinion survey design to assess the objectives by using an anonymous online survey platform. Given the limitations of confinement, and despite its limitations, rapid online surveys could reach large numbers of respondents in a short time frame, and may be a valuable tool to assess several objectives.<sup>3</sup> A snowball sampling strategy was utilized. The online survey was disseminated by convenience through several social media and university webmail and it was encouraged to pass on to others. The survey was maintained online 5 days, from 2 to 7 April 2020. A 30-item survey consisting of a series of both closed-ended and Likert-type questions was used. The first five questions solicited information about the participant's demographics including gender, age, level of education, employment status, and the region of Spain in which they currently reside. Twenty-five subsequent questions were related to the exercise performed before and after the confinement. Data from the survey reached the researchers completely anonymously through the survey platform, so these data cannot be considered personal data because the Spanish legislation establishes that a piece of information

is not a personal data if it is not possible to associate said data with a person.<sup>4</sup> Statistical analysis was performed using R version 3.6.2. Normal distribution was assessed with histograms and quantile-quantile plots. Median and interquartile range was used for non-normal distributed data. Inferential statistics with Wilcoxon matched-pairs signed-ranks tests were used to assess if the variables pre-confinement differed from the variables during confinement.

A total of 721 responders completed the survey. Most of the responders were resident of the region of Madrid (71.3%) and female (69.5%), being the mean age (IQR) 31.3 (21-39) years. The responders reported less time in daily physical exercise of any type than performed before to confinement (difference of 13.2 minutes,  $P < .001$ ). In addition, the daily time spent in sitting posture was increased (difference of 2.4 hours,  $P < .001$ ). However, we observed that the responders who declared being regular exercisers before confinement performed less daily time in physical exercise during confinement (from 82.3 to 54.2 minutes,  $P < .001$ ) and more time in sitting postures (from 7.0 to 9.7 hours,  $P < .001$ ), while the responders who declared being non-regular exercisers performed more time in physical exercise during confinement (from 16.2 to 40.8 minutes,  $P < .001$ ) but also more time in sitting posture (from 8.1 to 9.3 hours,  $P < .001$ ) (Figure 1). During confinement, differences between groups were statistically significant for physical exercise (13.4 min/d,  $P < .001$ ) but not for sitting time (0.4 hours,  $P = .241$ ). Moreover, results showed that 44.3% of responders declared that their interest for the exercise during the confinement increased. However, this interest was significantly higher in those who not performed regular exercise before the confinement (70.2%).

The results of this study showed that the confinement time caused by the COVID-19 in Spanish population impact over the physical activity routines pre-confinement, decreasing the time spent in physical exercise and increasing the sitting time. However, those participants who declared to be non-exercisers previously to confinement performed more exercise and showing a considerable increase in their interest in physical exercise. Staying at home may reduce and limit most of the exercises that can be performed in another place, affecting the total physical activity<sup>5</sup> that may have negative consequences for physical and




**FIGURE 1** Box plots represent the mean (min/d) in physical exercise (upper image) and the mean (h/min) in sitting time (bottom image) of responders that declared to be non-regular exercisers ( $n = 125$ ) and regular exercisers ( $n = 596$ ) before the confinement and during confinement as a consequence of COVID-19 disease.  $*P < .005$

mental health. Nonetheless, surely most regular exercisers will return to their normal routine after confinement and will once again enjoy the multiple health benefits of physical exercise. For this reason, and in view of these results, we must pay our interest and attention in the non-regular exercisers. The current situation should serve to promote the benefits of the exercise in the actual challenge, as the positive enhancing effects of the exercise and healthy lifestyle on immune system responses,<sup>6,7</sup> but also to promote the benefits of the exercise on the wellbeing, general health and the prevention of serious chronic diseases<sup>8</sup> in the future.

In conclusion, we animated and encouraged to all health professional to promote the performance to physical exercise during confinement, especially focused on non-exercisers. Likewise, governments should disseminate the need to perform physical exercise in this population during confinement to try to attract and have more active people in the near future.

#### CONFLICT OF INTEREST

The authors declare that there is no conflict of interest regarding the publication of this article.

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