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LETTER TO THE EDITOR

Beneficial for mental health, exercise more or less?

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Abstract

Regular physical activity may improve mental health during the pandemic by reducing inflammatory responses. However, overtraining or prolonged exercise training may adversely affect mental health.

Key Words: Physical activity; Exercise; Mental health; Runner's high

Core Tip: Several empirical studies have provided evidence regarding coronavirus disease 2019 (COVID-19)'s deleterious effects on people's physical and mental well-being. Those who exercised frequently before the COVID-19 pandemic, such as professional athletes, may suffer from significant imbalance, which can be as uncomfortable as withdrawal symptoms. Further research should focus on groups with high physical activity levels.

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TO THE EDITOR

We recently reviewed the article "Physical activity and mental well-being during the coronavirus disease 2019 (COVID-19) pandemic," issued in Volume 11 No. 12 of *World J of Psychiatry*. The authors assert that the COVID-19 pandemic may have deleterious effects on physical and mental well-being, including a growing level of angiotensin-converting enzyme 2 (ACE-2), associated with highly inflammatory effects[1].

Furthermore, they highlighted the significance of regular physical activities that maintain individuals' mental health during the pandemic. The conclusion should be adequately considered. Additionally, several empirical studies have provided evidence supporting this opinion, along with our comments in this correspondence.

Previous studies have shown that quarantine during an epidemic can be detrimental to mental health. In particular, it may lead to an increased probability of depression, anxiety, or post-traumatic stress disorder symptoms[2,3]. Moreover, the pandemic presents an explicit threat of suicide risk for some individuals[4]. During the pandemic, Brazilian undergraduate students had a higher rate of suicide risk than they had in the past[5]. Notably, one of the most visible negative changes the pandemic forced upon the public owing to the isolation policy, is increased sedentary behavior and reduced physical activity[6]. According to a multi-country cross-sectional analysis involving 8424 adults[7], negative changes in exercise behavior were associated with worse mental health and low happiness during the early COVID-19 restrictions compared to pre-pandemic restrictions. Research has proved that even home-based physical activities, such as cleaning the floor, bathing pets, or singing with children, can meet the WHO's recommendations when it is necessary to stay at home[8].

Abdelbasset *et al*[1] concluded in the article that regular physical activities might improve mental health during the pandemic by reducing inflammatory responses. However, they also noted that overtraining or prolonged exercise may adversely induce mental disorders. The endorphin hypothesis is a part of the physiological mechanism that explains the effect of exercise on mental health. Athletes who endured prolonged stress and overtraining may experience a feeling of well-being under the impact of endorphin; this phenomenon was acknowledged as "runner's high"[9]. Recently, Pearce *et al*[10] conducted a meta-analysis to explore the dose-response association between physical activity and incident depression in adults. They noted an inverse curvilinear association, in which the benefits were maximized when the frequency of activity changed from none to some. Additionally, the differences in the risk of depression were most significant with low doses of physical activity. Those who exercised frequently before COVID-19, such as professional athletes, may suffer from more imbalance, which is as uncomfortable as withdrawal symptoms. We call for further research focusing on these groups, enriching the data available about populations with higher physical activity levels.

FOOTNOTES

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