**Name of Journal:** *World Journal of Psychiatry*

**Manuscript NO:** 77609

**Manuscript Type:** LETTER TO THE EDITOR

**Beneficial for mental health, exercise more or less?**

Yan WJ *et al*. Exercise and mental health

Wen-Jie Yan, Fan Zhang, Hui Ouyang, Chen-Qi Xing, Wei-Zhi Liu

**Wen-Jie Yan, Fan Zhang, Hui Ouyang, Chen-Qi Xing, Wei-Zhi Liu,** Lab for Post-traumatic Stress Disorder, Faculty of Psychology and Mental Health, Naval Medical University, Shanghai 200433, China

**Author contributions:** Yan WJ and Zhang F contributed equally to this work; Yan WJ, Zhang F, Ouyang H, Xing CQ, and Liu WZ contributed equally in the production of this paper.

**Corresponding author: Wei-Zhi Liu, MD, PhD, Professor,** Lab for Post-traumatic Stress Disorder, Faculty of Psychology and Mental Health, Naval Medical University, No. 800 Xiangyin Road, Shanghai 200433, China. 13024141970@163.com

**Received:** May 9, 2022

**Revised:** June 21, 2022

**Accepted:** August 17, 2022

**Published online:** September 19, 2022

**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

**©The** **Author(s) 2022.** Published by Baishideng Publishing Group Inc. All rights reserved.

**Citation**: Yan WJ, Zhang F, Ouyang H, Xing CQ, Liu WZ. Beneficial for Mental Health, Exercise More or Less? *World J Psychiatry* 2022; 12(9): 1258-1260

**URL**: https://www.wjgnet.com/2220-3206/full/v12/i9/1258.htm

**DOI**: https://dx.doi.org/10.5498/wjp.v12.i9.1258

**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.

**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.

**REFERENCES**

1 **Abdelbasset WK**, Nambi G, Eid MM, Elkholi SM. Physical activity and mental well-being during COVID-19 pandemic. *World J Psychiatry* 2021; **11**: 1267-1273 [PMID: 35070776 DOI: 10.5498/wjp.v11.i12.1267]

2 **Dong L**, Bouey J. Public Mental Health Crisis during COVID-19 Pandemic, China. *Emerg Infect Dis* 2020; **26**: 1616-1618 [PMID: 32202993 DOI: 10.3201/eid2607.200407]

3 **Wu L**, Guo X, Shang Z, Sun Z, Jia Y, Sun L, Liu W. China experience from COVID-19: Mental health in mandatory quarantine zones urgently requires intervention. *Psychol Trauma* 2020; **12**: S3-S5 [PMID: 32538663 DOI: 10.1037/tra0000609]

4 **Moutier C**. Suicide Prevention in the COVID-19 Era: Transforming Threat Into Opportunity. *JAMA Psychiatry* 2020 [PMID: 33064124 DOI: 10.1001/jamapsychiatry.2020.3746]

5 **Demenech LM**, Neiva-Silva L, Brignol SMS, Marcon SR, Lemos SM, Tassitano RM, Dumith SC. Suicide risk among undergraduate students in Brazil in the periods before and during the COVID-19 pandemic: results of the SABES-Grad national survey. *Psychol Med* 2022: 1-13 [PMID: 35698864 DOI: 10.1017/S0033291722001933]

6 **Nyenhuis SM**, Greiwe J, Zeiger JS, Nanda A, Cooke A. Exercise and Fitness in the Age of Social Distancing During the COVID-19 Pandemic. *J Allergy Clin Immunol Pract* 2020; **8**: 2152-2155 [PMID: 32360185 DOI: 10.1016/j.jaip.2020.04.039]

7 **Faulkner J**, O'Brien WJ, McGrane B, Wadsworth D, Batten J, Askew CD, Badenhorst C, Byrd E, Coulter M, Draper N, Elliot C, Fryer S, Hamlin MJ, Jakeman J, Mackintosh KA, McNarry MA, Mitchelmore A, Murphy J, Ryan-Stewart H, Saynor Z, Schaumberg M, Stone K, Stoner L, Stuart B, Lambrick D. Physical activity, mental health and well-being of adults during initial COVID-19 containment strategies: A multi-country cross-sectional analysis. *J Sci Med Sport* 2021; **24**: 320-326 [PMID: 33341382 DOI: 10.1016/j.jsams.2020.11.016]

8 **Carvalho VO**, Gois CO. COVID-19 pandemic and home-based physical activity. *J Allergy Clin Immunol Pract* 2020; **8**: 2833-2834 [PMID: 32470443 DOI: 10.1016/j.jaip.2020.05.018]

9 **Mikkelsen K**, Stojanovska L, Polenakovic M, Bosevski M, Apostolopoulos V. Exercise and mental health. *Maturitas* 2017; **106**: 48-56 [PMID: 29150166 DOI: 10.1016/j.maturitas.2017.09.003]

10 **Pearce M**, Garcia L, Abbas A, Strain T, Schuch FB, Golubic R, Kelly P, Khan S, Utukuri M, Laird Y, Mok A, Smith A, Tainio M, Brage S, Woodcock J. Association Between Physical Activity and Risk of Depression: A Systematic Review and Meta-analysis. *JAMA Psychiatry* 2022; **79**: 550-559 [PMID: 35416941 DOI: 10.1001/jamapsychiatry.2022.0609]

**Footnotes**

**Conflict-of-interest statement:** The authors declare they do not have conflict of interest.

**Open-Access:** This article is an open-access article that was selected by an in-house editor and fully peer-reviewed by external reviewers. It is distributed in accordance with the Creative Commons Attribution NonCommercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: https://creativecommons.org/Licenses/by-nc/4.0/

**Provenance and peer review:** Unsolicited article; Externally peer reviewed.

**Peer-review model:** Single blind

**Peer-review started:** May 9, 2022

**First decision:** June 11, 2022

**Article in press:** August 17, 2022

**Specialty type:** Psychology

**Country/Territory of origin:** China

**Peer-review report’s scientific quality classification**

Grade A (Excellent): A

Grade B (Very good): B

Grade C (Good): 0

Grade D (Fair): 0

Grade E (Poor): 0

**P-Reviewer:** Shalaby MN, Egypt; Velázquez-Saornil J, Spain **S-Editor:** Chen YL **L-Editor:** A **P-Editor:** Chen YL



Published by **Baishideng Publishing Group Inc**

7041 Koll Center Parkway, Suite 160, Pleasanton, CA 94566, USA

**Telephone:** +19253991568

**Email:** bpgoffice@wjgnet.com

**Help Desk:** https://www.f6publishing.com/helpdesk

https://www.wjgnet.com



**© 2022 Baishideng Publishing Group Inc. All rights reserved.**