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# PHYSICAL ACTIVITY AND MENTAL HEALTH: A NARRATIVE REVIEW WITH IMPLICATIONS FOR PUBLIC HEALTH AND DIGITAL INTERVENTIONS

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**ABSTRACT**

Mental health disorders, including depression and anxiety, represent a major global health challenge and significantly affect quality of life and daily functioning (World Health Organization, 2023; Harvey et al., 2018). Increasing attention has been directed toward lifestyle factors, particularly physical activity, as potential strategies for improving psychological well-being (Firth et al., 2020; Ashdown-Franks et al., 2020).

The aim of this narrative review is to summarize current evidence regarding the relationship between physical activity and mental health, with particular focus on depression and anxiety, and to highlight implications for public health and digital interventions. A narrative review methodology was applied based on literature retrieved from PubMed and Google Scholar, focusing on studies published between 2010 and 2025.

The available evidence consistently demonstrates that regular physical activity is associated with reduced symptoms of depression and anxiety and improved overall psychological well-being (Singh et al., 2023; Schuch et al., 2018; Noetel et al., 2024). These effects are mediated through biological and psychological mechanisms (Kandola et al., 2019; Dishman et al., 2006).

Furthermore, digital technologies such as wearable devices and mobile health applications are increasingly used to promote physical activity and support mental health outcomes (Patel et al., 2015; Wang et al., 2022).

In conclusion, physical activity represents an effective and accessible complementary strategy in the prevention and management of mental health disorders.

**KEYWORDS**

Physical Activity; Mental Health; Depression; Anxiety; Digital Health

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## Introduction

Mental health disorders affect millions of individuals worldwide and are a leading cause of disability (World Health Organization, 2023; Harvey et al., 2018). Depression and anxiety significantly impair daily functioning and quality of life.

Physical inactivity is also a major global health concern, contributing to increased morbidity and mortality (Lee et al., 2012).

Regular physical activity is associated with numerous physiological and psychological benefits, including improved cardiovascular function and enhanced mood (Bauman et al., 2012).

A growing body of evidence suggests that physical activity may reduce the risk of developing mental health disorders (Schuch et al., 2018; Kandola et al., 2019; Ashdown-Franks et al., 2020; Firth et al., 2020).

## Methodology

This study was conducted as a narrative review of scientific literature. Relevant publications were identified through searches in electronic databases, including PubMed and Google Scholar. Keywords such as “physical activity,” “exercise,” “mental health,” “depression,” and “anxiety” were used.

The review primarily included systematic reviews, meta-analyses, and large observational studies published between 2010 and 2025. The selected studies were analyzed and synthesized to provide an overview of current evidence regarding the relationship between physical activity and mental health.

## Results

### *Physical Activity and Depression*

Physical activity has been consistently associated with reductions in depressive symptoms and improvements in psychological well-being (Kvam et al., 2016; Schuch et al., 2018; Singh et al., 2023; Noetel et al., 2024). Exercise interventions have been shown to be effective both as standalone treatments and as adjuncts to pharmacotherapy (Blumenthal et al., 2007).

Large population-based studies demonstrate that physically active individuals report significantly better mental health outcomes (Chekroud et al., 2018). Furthermore, physical activity has preventive effects, reducing the likelihood of developing depression (Mammen & Faulkner, 2013).

### *Physical Activity and Anxiety*

Exercise has been shown to significantly reduce symptoms of anxiety and improve emotional regulation (Stubbs et al., 2017; Rebar et al., 2015). These effects may be related to improved stress tolerance and neurobiological adaptations (Mikkelsen et al., 2017).

## Discussion

The findings confirm that physical activity plays a crucial role in mental health promotion (Singh et al., 2023; Firth et al., 2020; Biddle & Asare, 2011).

Biological mechanisms include neurotransmitter regulation and neuroplastic changes (Kandola et al., 2019; Dishman et al., 2006). Exercise also reduces activity of the hypothalamic–pituitary–adrenal axis, leading to lower cortisol levels and improved stress response (Mikkelsen et al., 2017).

Digital technologies represent a rapidly developing field that may enhance adherence to physical activity interventions (Patel et al., 2015; Wang et al., 2022).

From a public health perspective, promoting physical activity may reduce the global burden of mental health disorders.

## Conclusions

Physical activity is an effective strategy for improving mental health and should be integrated into prevention and treatment strategies.

## Disclosure

The authors declare no conflict of interest.

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## REFERENCES

1. Ashdown-Franks, G., Firth, J., Carney, R., et al. (2020). Exercise as medicine for mental and substance use disorders: A meta-review. *Sports Medicine, 50*(1), 151–170. https://doi.org/10.1007/s40279-019-01187-6
2. Bauman, A. E., Reis, R. S., Sallis, J. F., et al. (2012). Correlates of physical activity: Why are some people physically active and others not? *The Lancet, 380*(9838), 258–271. https://doi.org/10.1016/S0140-6736(12)60735-1
3. Biddle, S. J. H., & Asare, M. (2011). Physical activity and mental health in children and adolescents: A review of reviews. *British Journal of Sports Medicine, 45*(11), 886–895. https://doi.org/10.1136/bjsports-2011-090185
4. Blumenthal, J. A., Babyak, M. A., Doraiswamy, P. M., et al. (2007). Exercise and pharmacotherapy in the treatment of major depressive disorder. *Psychosomatic Medicine, 69*(7), 587–596. https://doi.org/10.1097/PSY.0b013e318148c19a
5. Chekroud, S. R., Gueorguieva, R., Zheutlin, A. B., et al. (2018). Association between physical exercise and mental health in 1.2 million individuals in the USA. *The Lancet Psychiatry, 5*(9), 739–746. https://doi.org/10.1016/S2215-0366(18)30227-X
6. Dishman, R. K., Berthoud, H. R., Booth, F. W., et al. (2006). Neurobiology of exercise. *Obesity, 14*(3), 345–356. https://doi.org/10.1038/oby.2006.46
7. Firth, J., Solmi, M., Wootton, R. E., et al. (2020). A meta-review of lifestyle psychiatry. *World Psychiatry, 19*(3), 360–380. https://doi.org/10.1002/wps.20773
8. Gordon, B. R., McDowell, C. P., Lyons, M., & Herring, M. P. (2018). Association of efficacy of resistance exercise training with depressive symptoms. *JAMA Psychiatry, 75*(6), 566–576. https://doi.org/10.1001/jamapsychiatry.2018.0572

9. Harvey, S. B., Øverland, S., Hatch, S. L., Wessely, S., Mykletun, A., & Hotopf, M. (2018). Exercise and the prevention of depression: Results of the HUNT cohort study. *American Journal of Psychiatry, 175*(1), 28–36. https://doi.org/10.1176/appi.ajp.2017.16111223
10. Kandola, A., Ashdown-Franks, G., Hendrikse, J., et al. (2019). Physical activity and depression: Towards understanding the antidepressant mechanisms. *Neuroscience & Biobehavioral Reviews, 107*, 525–539. https://doi.org/10.1016/j.neubiorev.2019.09.040
11. Kvam, S., Kleppe, C. L., Nordhus, I. H., et al. (2016). Exercise as a treatment for depression: A meta-analysis. *Journal of Affective Disorders, 202*, 67–86. https://doi.org/10.1016/j.jad.2016.03.063
12. Lee, I. M., Shiroma, E. J., Lobelo, F., et al. (2012). Effect of physical inactivity on major non-communicable diseases. *The Lancet, 380*(9838), 219–229. https://doi.org/10.1016/S0140-6736(12)61031-9
13. Mammen, G., & Faulkner, G. (2013). Physical activity and the prevention of depression. *American Journal of Preventive Medicine, 45*(5), 649–657. https://doi.org/10.1016/j.amepre.2013.08.001
14. Mikkelsen, K., Stojanovska, L., Polenakovic, M., et al. (2017). Exercise and mental health. *Maturitas, 106*, 48–56. https://doi.org/10.1016/j.maturitas.2017.09.003
15. Noetel, M., Sanders, T., Gallardo-Gómez, D., et al. (2024). Effect of exercise for depression: Systematic review and network meta-analysis of randomised controlled trials. *BMJ, 384*, e075847. https://doi.org/10.1136/bmj-2023-075847
16. Patel, M. S., Asch, D. A., & Volpp, K. G. (2015). Wearable devices as facilitators, not drivers, of health behavior change. *JAMA, 313*(5), 459–460. https://doi.org/10.1001/jama.2014.14781
17. Pearce, M., Garcia, L., Abbas, A., et al. (2022). Association between physical activity and risk of depression. *JAMA Psychiatry, 79*(6), 550–559. https://doi.org/10.1001/jamapsychiatry.2022.0609
18. Rebar, A. L., Stanton, R., Geard, D., et al. (2015). A meta-meta-analysis of the effect of physical activity on depression and anxiety. *Health Psychology Review, 9*(3), 366–378. https://doi.org/10.1080/17437199.2015.1022901
19. Rhodes, R. E., Janssen, I., Bredin, S. S. D., et al. (2017). Physical activity: Health impact, prevalence, correlates and interventions. *Psychology & Health, 32*(8), 942–975. https://doi.org/10.1080/08870446.2017.1325486
20. Schuch, F. B., Vancampfort, D., Firth, J., et al. (2018). Physical activity and incident depression: A meta-analysis of prospective cohort studies. *American Journal of Psychiatry, 175*(7), 631–648. https://doi.org/10.1176/appi.ajp.2018.17111194
21. Schuch, F. B., Stubbs, B., Meyer, J., et al. (2019). Physical activity protects from incident anxiety: A meta-analysis of prospective cohort studies. *Depression and Anxiety, 36*(9), 846–858. https://doi.org/10.1002/da.22915
22. Schuch, F. B., Vancampfort, D., Rosenbaum, S., et al. (2017). Physical activity in major depressive disorder. *Journal of Affective Disorders, 210*, 139–150. https://doi.org/10.1016/j.jad.2016.10.050
23. Singh, B., Olds, T., Curtis, R., et al. (2023). Effectiveness of physical activity interventions for improving depression, anxiety and distress. *British Journal of Sports Medicine, 57*(18), 1203–1209. https://doi.org/10.1136/bjsports-2022-106195
24. Stubbs, B., Vancampfort, D., Hallgren, M., et al. (2018). EPA guidance on physical activity as a treatment for severe mental illness. *European Psychiatry, 54*, 124–144. https://doi.org/10.1016/j.eurpsy.2018.07.004
25. Stubbs, B., Vancampfort, D., Rosenbaum, S., et al. (2017). An examination of the anxiolytic effects of exercise for people with anxiety and stress-related disorders. *Psychiatry Research, 249*, 102–108. https://doi.org/10.1016/j.psychres.2016.12.020
26. Teychenne, M., Ball, K., & Salmon, J. (2010). Sedentary behavior and depression among adults: A review. *International Journal of Behavioral Medicine, 17*(4), 246–254. https://doi.org/10.1007/s12529-010-9075-z
27. Wang, Y., Min, J., Khuri, J., et al. (2022). Effectiveness of mobile health interventions on diabetes and obesity treatment and management: Systematic review of systematic reviews. *JMIR mHealth and uHealth, 10*(1), e29431. https://doi.org/10.2196/29431
28. World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behaviour*. https://www.who.int/publications/i/item/9789240015128
29. World Health Organization. (2022). *World mental health report: Transforming mental health for all*. https://www.who.int/publications/i/item/9789240049338
30. World Health Organization. (2023). *Depression*. https://www.who.int/news-room/fact-sheets/detail/depression