

Study finds relationship between depression symptoms and physical activity likely goes both ways

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New research from the University of Toronto finds that adults reporting more depression symptoms in the past week are less likely to report

physical activity in the same period, and this relationship generally goes both ways: being more active is also linked to better mental health.

Published in the journal *Mental Health and Physical Activity*, [the study](#) contributes to better understanding how depression symptoms and physical activity are connected and mutually affect each other during adulthood.

"It was surprising to find that present depression symptoms can negatively impact your physical activity levels two to five years later, while being inactive today is not related to your future depression symptoms," says author Soli Dubash, a doctoral candidate in the University of Toronto's Department of Sociology.

"Current depression symptoms may have lasting effects, but these may be less substantial than the effects of current physical activity."

Many studies show that going to the gym, dancing, gardening or regularly walking can improve both your mental and [physical health](#), with effects similar to those of anti-depressant medication. The new study further supports this conclusion, showing that weekly physical activity is related to weekly depression symptoms, and that moving more can improve your mood.

"Better understanding the reciprocal relationship between mental health and physical activity can help people make evidence-based decisions about their health, and the health of their loved ones and [community members](#)," says Dubash.

"It's important to allow people to reach their own decisions about the causes and consequences of physical activity and depression symptoms, and to grasp the impact that moving more—or less—can have on mood and overall health."

Following a nationally representative sample of 3,499 U.S. adults from 1986 until 2011, the study assessed the lasting effects of baseline differences in physical activity levels and depression symptoms; how past physical activity predicts future physical activity; how past depression symptoms predict future depression symptoms; and the stability of this relationship during adulthood.

This study used a new causal inference technique to help ensure that these estimates represent people's experiences in the world. The method adjusted for stable characteristics of individuals, including omitted variables such as individual biology, family and community contexts, and [life history](#).

While the idea that depression symptoms and physical activity are related during adulthood is not new, a new technique for examining reciprocal relationships over time allows for several alternative arguments to be accounted for.

"You may immediately ask how personal factors play into this reciprocal relationship—wouldn't genetics or early life history matter?—and that's what this method allows us to adjust for, compared with earlier techniques that would assume some evidence relevant to those important questions away," Dubash says.

Overall, physical activity and mental health mutually affect each other. Week to week, moving more can improve your mood. This research shows that earlier depression symptoms may persist, but their long-term effects could be less impactful than current physical activity. It also shows that over time, untreated depression symptoms can hold [negative consequences](#) for physical activity levels which can then cause additional health problems.

"What really matters is that people make informed decisions about how

to treat their [mental health](#) symptoms, particularly with the knowledge that [physical activity](#) continues to be one of the best ways to improve the health of individuals and their communities—yet, more people need to understand how [depression symptoms](#) can influence this process," says Dubash.

More information: Soli Dubash, The interplay of depression symptoms and physical activity: Bidirectional insights from 25-years of the Americans' changing lives panel, *Mental Health and Physical Activity* (2024). [DOI: 10.1016/j.mhpa.2024.100599](https://doi.org/10.1016/j.mhpa.2024.100599)

Provided by University of Toronto

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