

Study shows physical activity can counteract the negative consequences of being alone

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Researchers at the Central Institute of Mental Health have taken increasing social isolation as an opportunity to examine the relevance of physical activity for mental health in the context of being alone. Their

study shows that physical activity in everyday life has the potential to compensate for the negative consequences of being alone on well-being—especially in psychologically and neurobiologically vulnerable people.

Social isolation and loneliness are major societal problems. Their negative impact on [mental health](#) has been exacerbated worldwide by the COVID-19 pandemic.

Researchers from the Central Institute of Mental Health (CIMH) in Mannheim, in collaboration with scientists from the Karlsruhe Institute of Technology (KIT), the Ruhr University Bochum (RUB) and the University of Bern, have investigated the extent to which [physical activity](#) can mitigate the negative effects of being alone on affective well-being.

The interdisciplinary research team has [published](#) the study results in the journal *Nature Mental Health*.

The study shows that people who were alone at the moment in their everyday lives reported comparatively lower levels of affective well-being, but these increased when they were physically active. The data suggests that physical activity, such as walking at a pace of three miles per hour for an hour, can compensate for a momentary "social-affective deficit."

In further exploratory analyses, the researchers found that this positive effect of physical activity persisted even at lower levels of activity and during pandemic-related restrictions. Measurements of the participants' brain functions also showed that people with an increased neuronal risk of depression and loneliness benefited most effectively from a more physically active lifestyle.

The study included 317 [young adults](#) and a second group of 30 adults who were examined during the COVID-19 pandemic. The researchers used a combination of methods for their study, including accelerometers, smartphones with electronic diaries, and brain imaging. This approach enabled the researchers to investigate the complex interplay of social contact, physical activity and affective well-being in everyday life and to identify associated brain functions.

"Previous studies have predominantly examined social contact and physical activity independently. Our study expands the state of knowledge by showing a dynamic interplay between these two factors in everyday life that influences affective well-being," says Anastasia Benedyk from the Department of Psychiatry and Psychotherapy at the CIMH, who is first author of the study together with Prof. Dr. Markus Reichert (CIMH and RUB).

Prof. Dr. Dr. Heike Tost, also from the Department of Psychiatry and Psychotherapy at the CIMH, adds, "The results suggest that physical activity can be used as an effective and accessible strategy to counteract the psychological effects of being alone and loneliness and to improve public health."

For their study in a community-based sample, the interdisciplinary research team combined methods from epidemiology, psychology, geoinformatics and neuroscience. The scientists studied a cohort of 317 healthy adults aged 18 to 28 years who were recruited from 2014 to 2018. In addition, a replication sample of 30 healthy adults aged 18 to 63 years recruited from 2019 to July 2022 during the COVID-19 pandemic was examined.

More information: Anastasia Benedyk et al, Real-life behavioral and neural circuit markers of physical activity as a compensatory mechanism for social isolation, *Nature Mental Health* (2024). [DOI](#):

[10.1038/s44220-024-00204-6](https://doi.org/10.1038/s44220-024-00204-6)

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