# Study Finds Variety, Intensity of Exercise Lower Odds of Depressive Symptoms

*Kenneth H. Cooper Institute at TTUHSC Releases Findings*

Pavlovic said that the research results underscore the link between physical and mental health.

LUBBOCK, TX, UNITED STATES, June 15, 2026 /EINPresswire.com/ -- Engaging in a variety of physical activities — especially those of higher intensity — may be linked to lower odds of experiencing depressive symptoms, according to new research published June 15, 2026, in Medicine & Science in Sports & Exercise.

The study, conducted by a team at the Kenneth H. Cooper Institute at Texas Tech University Health Sciences Center (TTUHSC), analyzed data from more than 38,000 adult participants in the Cooper Center Longitudinal Study to better understand how different characteristics of physical activity relate to depressive symptoms measured by the Center for Epidemiologic Studies Depression Scale (CES-D), a widely used screening tool.

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> *Andjelka Pavlovic, Ph.D., Kenneth H. Cooper Institute at TTUHSC*

"We've known for a long time that physical activity as a whole is connected to better mental health," Andjelka Pavlovic, Ph.D., lead author with the Research Division at the Cooper Institute and research assistant professor in the TTUHSC Julia Jones Matthews School of Population and Public Health, said. "But what we wanted to figure out was which parts of physical activity have the greatest impact on depressive symptoms."

The research team examined several aspects of physical activity — volume, duration, average intensity, diversity and each participant's predominant activity type — to see how each factor related to depressive symptoms.

“When we modeled these characteristics individually, all of them were significantly related to a lower risk of depressive symptoms,” Pavlovic said. “But when we put them all into one model simultaneously, we found that average intensity and diversity of activity were the most significant predictors.”

To measure diversity, the researchers used Shannon’s Diversity Index, traditionally used in ecology to assess species diversity. “This has not previously been used in public health and exercise science studies,” Pavlovic explained. “We wanted to look at not just the number of activities people report, but how evenly they distribute their time among them.”

The findings also revealed some sex-based differences. Pavlovic noted that very vigorous activity was more strongly associated with reduced odds of depressive symptoms among women. In contrast, aerobic or mixed endurance activities showed stronger associations with lower reported depressive symptoms among men.

The sample included 12,568 women and 26,378 men with an average age of 49 who completed a detailed physical activity survey and the CES-D during preventive health care examinations at the Cooper Clinic in Dallas between 2000 and 2024. The participants were predominantly white, college-educated and generally healthy.

Lead author Andjelka Pavlovic, Ph.D., works in the Research Division at the Kenneth H. Cooper Institute at TTUHSC and is a research assistant professor in the TTUHSC Julia Jones Matthews School of Population and Public Health.

While the study examined depressive symptoms, not clinically diagnosed depression or causation, Pavlovic said the results open the door for further research. “Future studies should further explore average intensity and diversity of activity in relation to clinical diagnosis of depression, as well as other mental health conditions such as anxiety and suicidal ideation,” she said.

Pavlovic added that the research results underscore the link between physical and mental health. “I do think they’re closely intertwined, and this study helps drive that point further,” she said.

Originally a non-profit founded by Kenneth H. Cooper, M.D., MPH, in 1970, the Cooper Institute is dedicated to promoting lifelong health and wellness through research and education.

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