

# Voluntary exercise does not appear to alleviate anxiety and depression

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Voluntary physical activity does not appear to cause a reduction in anxiety and depression, but exercise and mood may be associated through a common genetic factor, according to a report in the August issue of *Archives of General Psychiatry*.

In the general population, regular exercise is associated with reduced anxious and depressive symptoms, according to background information in the article. Experiments involving specific clinical populations have suggested that exercise causes this reduction in anxiety and depression. However, it is unclear whether this causal effect also occurs in the larger population or whether there is a third underlying factor influencing both physical activity and the risk for mood disorders.

Marleen H. M. De Moor, M.Sc., of VU University Amsterdam, the Netherlands, and colleagues studied 5,952 twins from the Netherlands Twin Register, along with 1,357 additional siblings and 1,249 parents. Participants, all aged 18 to 50, filled out surveys about leisure-time exercise and completed four scales measuring anxious and depressive symptoms.

Associations observed between exercise and anxious and depressive symptoms "were small and were best explained by common genetic factors with opposite effects on exercise behavior and symptoms of anxiety and depression," the authors note. "In genetically identical twin pairs, the twin who exercised more did not display fewer anxious and depressive symptoms than the co-twin who exercised less." Exercise

behavior in one identical twin predicted anxious and depressive symptoms in the other, meaning that if one twin exercised more, the other tended to have fewer symptoms.

However, the same was not true of dizygotic (fraternal) twins or other siblings, who share only part of their genetic material. In addition, analyses over time showed that individuals who increased their level of exercise did not experience a decrease in anxious and depressive symptoms.

"It is unknown which genes might be involved in voluntary exercise behavior and in the risk for anxiety and depression," the authors write, but genes involved in the brain pathways that process dopamine, norepinephrine, opioids or serotonin are likely candidates.

Source: JAMA and Archives Journals

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