

Study suggests physical activity may help protect children from onset of depression

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Sheri Madigan, PhD, a member of the Alberta Children's Hospital Research Institute and assistant professor in the Department of Psychology in the Faculty of Arts, co-authored the new study. Credit: Riley Brandt, University of Calgary

The health benefits associated with regular physical activity are well known, and existing research has shown that exercise may help in the treatment of depression in children. In a new study, researchers at The Hospital for Sick Children (SickKids) and University of Calgary

researchers at the Alberta Children's Hospital have identified exercise as one of the factors that can affect a child's risk for developing depressive symptoms in the future. The paper, published in the March 17 online edition of *Pediatrics*, is the first meta-analysis to examine the potential protective association of childhood physical activity with depression over time.

Discrepancies in research left clinicians with questions

"We were seeing huge discrepancies in the [research](#)—some studies showed strong support that [physical activity](#) is related to reducing depression, and other studies showed no relationship at all. When a body of research is really inconsistent, it's harder for clinicians to make appropriate recommendations," says co-author Sheri Madigan, PhD, a member of the Alberta Children's Hospital Research Institute and assistant professor in the Department of Psychology in the Faculty of Arts. "We were really interested in finding out if there is any validity to these types of interventions based on the data in current research."

The Canadian Mental Health Association says 3.2 million children in Canada between the ages of 12 and 19 are at risk for developing depression. Of these, five per cent of males and 12 per cent of females have experienced a [major depressive episode](#). A number of intervention programs focused on increasing children's physical activity to support treatment for [mental health](#) issues have launched in recent years.

Meta-analysis looks at factors over time

"Most of what we know in the field is based on cross-sectional studies that look at a moment in a child's life. In these studies, we found that more physical activity is associated with better mood. The tricky part is

that from a snapshot in time, we can't tell if children who are more physically active are less likely to experience depressive symptoms, or if children who feel better are more likely to be physically active. This is why research that looks at these factors over time is so important," says the study's principal investigator, Dr. Daphne Korczak, child and adolescent psychiatrist and head of the Children's Integrated Mood and Body (CLIMB) Depression Program at SickKids.

The research team conducted a meta-analysis, examining the research since 2005 on the association between physical activity and depression in children and adolescents. The evaluation included 40 studies involving a total of 90,000 participants between the ages of eight and 19 years old. Study participants were healthy and did not have diagnosed depression.

Findings point to other factors besides physical activity

The researchers found a statistically significant association between increased physical activity and future [depressive symptoms](#) in children over time; however, the relationship was not as strong as they expected. "This suggests that physical activity is one factor, but that there are other factors that are important in determining a child's risk for developing depression," says Korczak, who is also project investigator at SickKids Research Institute and assistant professor in the Department of Psychiatry at the University of Toronto. She notes that these additional factors include having a family history of depression, particularly in a parent; struggling academically or feeling unsuccessful at school; being bullied or socially excluded by peers.

The Canadian Psychological Association recommends children and adolescents get 60 minutes of physical activity a day; however, statistics published by the Canadian Society for Exercise Physiology suggest that

only 15 per cent of children (5 to 11 years) and five per cent of adolescents (12 to 17 years) meet this recommended amount.

Greater physical activity means less risk for depression

"Our study shows longitudinal support for physical activity," says Madigan. "If we look at physical activity at age 15 and then measure depression at age 18, the relationship is still going in the predicted direction—that is, greater physical activity means less risk for depression."

Korczak explains that since the study did not look at children with depression or examine the frequency, type or intensity of exercise, more research is needed to understand how physical activity affects the brain and the body to impact someone's mood. "There may be subgroups of [children](#) for whom physical activity is more or less important when it comes to risk of [depression](#). There may also be aspects of the activity that are more or less important, such as how vigorous or long-lasting the [activity](#) is, or whether it involves a social component such as team participation," she says.

More information: Daphne J. Korczak et al. Children's Physical Activity and Depression: A Meta-analysis, *Pediatrics* (2017). [DOI: 10.1542/peds.2016-2266](https://doi.org/10.1542/peds.2016-2266)

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