

Skiers had lower incidence of depression and vascular dementia—but not Alzheimer's

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The race: Vasaloppet. Credit: Lund University

Half as many diagnosed with depression, a delayed manifestation of

Parkinson's, a reduced risk of developing vascular dementia—but not Alzheimer's. These connections were discovered by researchers when they compared 200 000 people who had participated in a long-distance cross-country ski race between 1989 and 2010 with a matched cohort of the general population. The results of the population register study, led by researchers at Lund University in Sweden together with Uppsala University, were recently published in three scientific articles.

"As brain researchers, we have had the unique opportunity to analyze an exceptionally large group of very physically active people over two decades, and we have unraveled some interesting results," says Tomas Deierborg, research team leader and associate professor at Lund University.

It has been previously shown that the skiers of Vasaloppet, a popular cross-country skiing race in Sweden, have a reduced risk of suffering a heart attack, but not what the situation looked like for brain diseases.

In the group of Vasaloppet skiers (a total of 197 685 people) there were 50 percent fewer people affected by [vascular dementia](#) than in the control group (a total of 197 684 people). On the other hand, researchers discovered that the risk of developing Alzheimer's [disease](#) was not reduced, something that contradicts previous studies in the field which show that physical activity has an impact on Alzheimer's.

Two decades after the skiers had competed in the Vasaloppet ski race, 233 had developed [dementia](#) (incl. vascular and Alzheimer's dementia), 40 of these people had been diagnosed with vascular dementia and 86 people with Alzheimer's disease. In the [general population](#), 319 had developed dementia, 72 had developed vascular dementia and 95 had developed Alzheimer's dementia.



Credit: Lund University

"The results indicate that physical activity does not affect the molecular processes that cause Alzheimer's disease, such as the accumulation of the amyloid protein. Nonetheless, physical activity reduces the risk of vascular damage to the brain, as well as to the rest of the body," says memory researcher Oskar Hansson, professor of neurology at Lund University.

The researchers saw similar results when they studied 20 000 subjects in the [population](#) study called Malmö Diet and Cancer. The participants

who were most physically active had a lower risk of developing vascular dementia, in line with the results found in the Vasaloppet cohort. On the other hand, there were no significant differences in developing Alzheimer's disease between the group that was most physically active and the group with the lowest [physical activity](#).

The researchers also studied whether Vasaloppet skiers had a [reduced risk](#) over time of developing Parkinson's disease. Two decades (21 years) after they had participated in the Vasaloppet ski race, 119 people had been diagnosed with Parkinson's. In the general population, 164 people had received the diagnosis. However, the difference between those who are physically active (the Vasaloppet skiers) and the general population appears to diminish over time.

"The mechanisms behind this still need to be investigated, but it seems that those who are physically active have a 'motor reserve' that postpones the onset of the disease. If a person trains a lot it may be possible to maintain mobility for longer, despite the pathological changes in the brain," speculates Tomas Olsson, doctoral student and author of the study.



Credit: Lund University

When the researchers studied how many Vasaloppet skiers suffered from depression compared to the general population, they found that the risk was halved in those who had participated in Vasaloppet.

Following two decades of follow-up, a total of 3,075 people had been diagnosed with depression, of whom 1,030 were Vasaloppet skiers and 2,045 people were from the general population.

Researchers also studied the differences between men and women. The

risk of suffering from depression was further reduced in men who were part of the group with the fastest finishing times. This did not apply to the fastest female Vasaloppet skiers, though.

"However, the fastest women still had a [lower risk](#) of suffering from depression than those who were not active in the general population," says Martina Svensson, doctoral student at Lund University and author of the scientific articles.

More information: Oskar Hansson et al. Midlife physical activity is associated with lower incidence of vascular dementia but not Alzheimer's disease, *Alzheimer's Research & Therapy* (2019). [DOI: 10.1186/s13195-019-0538-4](https://doi.org/10.1186/s13195-019-0538-4)

Tomas T. Olsson et al. Delayed Clinical Manifestation of Parkinson's Disease Among Physically Active: Do Participants in a Long-Distance Ski Race Have a Motor Reserve?, *Journal of Parkinson's Disease* (2019). [DOI: 10.3233/JPD-191762](https://doi.org/10.3233/JPD-191762)

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Provided by Lund University

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