

Reduce frailty to lower dementia, study finds

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Reducing frailty in older adults could be an effective strategy to prevent dementia, according to a largescale new study.

Published in the *Journal of Neurology, Neurosurgery and Psychiatry*, the study found that [frailty](#) was a strong risk factor for dementia, even

among people who are at a high [genetic risk](#) for dementia, and that it might be modified through a [healthy lifestyle](#).

The international team from Dalhousie University and Nova Scotia Health in Canada and the University of Exeter in the UK, worked with data from more than 196,000 adults aged over 60 in the UK Biobank. They calculated participants' genetic risk and used a previously-developed score for frailty, which reflects the accumulation of age-related symptoms, signs, disabilities and diseases. They analyzed this alongside a score on healthy lifestyle behaviors, and who went on to develop dementia.

"We're seeing increasing evidence that taking meaningful action during life can significantly reduce [dementia risk](#)," says lead author Dr. David Ward, from the Division of Geriatric Medicine at Dalhousie University "Our research is a major step forward in understanding how reducing frailty could help to dramatically improve a person's chances of avoiding dementia, regardless of their [genetic predisposition](#) to the condition. This is exciting because we believe that some of the underlying causes of frailty are in themselves preventable. In our study, this looked to be possible partly through engaging in healthy lifestyle behaviors."

Over the 10-year UK Biobank study period, dementia was detected via hospital admission records in 1,762 of the participants—and these people were much more likely to have a high degree of frailty before their diagnosis compared with those who did not develop dementia.

The importance of preventing or reducing frailty was highlighted when the researchers examined the impact of genetic risk in people with different degrees of frailty. Genetic risk factors exerted their expected effect on risk of dementia in study participants who were healthy, but genes were progressively less important in study participants who were the most frail. In those frail study participants, risk of dementia was high

regardless of their genes.

Even in those at the highest genetic risk of dementia, the researchers found that risk was lowest in people who were fit, and highest in people who were in [poor health](#), which was measured as a high degree of frailty. However, the combination of high genetic risk and high frailty was found to be particularly detrimental, with participants at six times greater risk of dementia than participants without either risk factor.

Compared with study participants with a low degree of frailty, risk of dementia was more than 2.5 times higher (268 per cent) among study participants who had a high degree of frailty—even after controlling for numerous genetic determinants of dementia.

The research identified pathways to reducing dementia risk. Study participants who reported more engagement in healthy lifestyle behaviors were less likely to develop dementia, partly because they had a lower degree of frailty.

"The risk of dementia reflects genetic, neuropathological, lifestyle, and general health factors that in turn give rise to a range of abnormalities in the brain," says Dr. Kenneth Rockwood, a Professor of Geriatric Medicine and Neurology and the Kathryn Allen Weldon Professor of Alzheimer Research at Dalhousie University, and the Senior Medical Director of the newly formed Frailty and Elder Care Network at Nova Scotia Health. "Our study is an important step forward on the role of frailty, which appears to have a unique and potentially modifiable pathway in influencing dementia risk. That's an incredibly exciting prospect that we must urgently explore to potentially benefit the growing number of people worldwide affected by dementia.

Co-author Dr. Janice Ranson, from the University of Exeter Medical School, said: "These findings have extremely positive implications,

showing it's not the case that dementia is inevitable, even if you're at a genetic high risk. We can take meaningful action to reduce our risk; tackling frailty could be an [effective strategy](#) to maintaining brain health, as well as helping people stay mobile and independent for longer in later life."

The paper is entitled, "Frailty, lifestyle, genetics and [dementia](#) risk," and is published in the *Journal of Neurology, Neurosurgery and Psychiatry*.

More information: David D Ward et al, Frailty, lifestyle, genetics and dementia risk, *Journal of Neurology, Neurosurgery & Psychiatry* (2021). [DOI: 10.1136/jnnp-2021-327396](https://doi.org/10.1136/jnnp-2021-327396)

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