

Exercise more, sit less to manage frailty and hypertension risk in aging, says study

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A new study of middle-aged and older adults looks at sex differences in frailty levels and their link with heart health. The findings suggest that moving your body more through regular exercise and sitting less can help

keep both heart disease and frailty at bay as we age.

The [study](#) is published ahead of print in the *American Journal of Physiology-Heart and Circulatory Physiology* and has been chosen as an APSselect article for July.

An estimated 11% of [older adults](#) living on their own experience frailty. It is defined as "the accumulation of health deficits," which translates to a state of increased vulnerability to adverse health outcomes, such as frequent use of health care services, poor quality of life, disability and death.

Although women live longer than men, they are more likely to have higher frailty levels. In general, the link between frailty and [heart health](#) is not well understood.

Previous research has found that frailty is its own risk factor for [cardiovascular disease](#), and conversely, people with [high blood pressure](#) are more likely to experience frailty. Through the Canadian Longitudinal Study on Aging, researchers tested the association between frailty level with high blood pressure and heart disease. They also looked at how this association differed between males and females, and if physical activity played a role in risk levels.

The Canadian Longitudinal Study on Aging (CLSA) is composed of nearly 30,000 middle-aged or older adults between the ages of 45 and 85 who participated in in-person testing. People who have been diagnosed with [cognitive decline](#) or live in long-term care facilities were not eligible for the study.

The volunteers answered questions about their health, level of physical activity and perception about their [economic stability](#); participated in physical exams and gave blood samples. The CLSA research team

followed up with study volunteers after three years.

Some of the researchers' baseline findings included:

- The men were older, weighed more and had higher blood pressure than the women.
- The men performed more physical activity at all intensity levels, but their sitting time was roughly equal to that of the women.
- More men had angina or had survived a heart attack.
- More women had peripheral vascular disease.
- Women had a higher frailty rate.

At the three-year follow-up, the research team discovered:

- A higher baseline frailty level was associated with a higher risk for high blood pressure and heart disease in both sexes.
- Sitting more and spending less time participating in light-to-moderate intensity activity and strengthening exercises correlated with worse frailty levels in both sexes.
- Sitting less and participating more in strenuous exercise led to less high blood pressure in both sexes
- Sitting less (females only) and strenuous exercise (both sexes) partially explained the link between frailty and high blood pressure.
- Light-to-moderate exercise was particularly beneficial for females.

The fact that light-to-moderate physical movement played a beneficial role in the women's heart health but not the men's was a particularly interesting finding, according to the researchers. "Given that frailty tends to be greater among females versus males, activity that is conducted at a light-moderate intensity (e.g., slow or brisk walking) may be particularly useful for combating frailty and [heart disease](#) among females," they

wrote.

"Altogether, this study documented the associations between lower frailty levels and better heart health and the favorable impact of movement factors on hypertension among males and females," the researchers wrote. "[S]itting less and engaging in more strenuous [physical activity](#) may be feasible interventions for reducing the prevalence of [frailty](#) and high blood pressure and uncoupling the link between susceptibility of disease and adverse cardiovascular health."

More information: Myles W. O'Brien et al, Relation between frailty and hypertension is partially mediated by physical activity among males and females in the Canadian Longitudinal Study on Aging, *American Journal of Physiology-Heart and Circulatory Physiology* (2024). [DOI: 10.1152/ajpheart.00179.2024](#)

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