

# Low vitamin K levels linked to mobility limitation and disability in older adults

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Low vitamin K levels linked to mobility limitation and disability in older adults.  
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Low levels of circulating vitamin K are linked to increased risk of mobility limitation and disability in older adults, identifying a new factor

to consider for maintaining mobility and independence in older age, according to a study led by researchers at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University.

The study, published online in May in advance of print in the *Journal of Gerontology: Medical Sciences*, is the first to evaluate the association between biomarkers of vitamin K status and the onset of mobility limitation and disability in [older adults](#).

"Because of our growing population of older people, it's important for us to understand the variety of risk factors for mobility disability," said Kyla Shea, first and corresponding author and a nutrition scientist in the Vitamin K Laboratory at the [Jean Mayer USDA Human Nutrition Research Center on Aging](#) (HNRC) at Tufts University.

"Low vitamin K status has been associated with the onset of chronic diseases that lead to disability, but the work to understand this connection is in its infancy. Here, we're building on previous studies that found that low levels of circulating vitamin K are associated with slower gait speed and a higher risk of osteoarthritis," she continued.

The new study examined two biomarkers: circulating levels of vitamin K (phylloquinone) and a functional measure of vitamin K (plasma ucMGP). Using participant data from the [Health, Aging, and Body Composition Study](#) (Health ABC), the study found that older adults with low levels of circulating vitamin K were more likely to develop mobility limitation and disability. The other biomarker, plasma ucMGP, did not show clear associations with mobility limitation and disability.

Specifically, older adults with low circulating vitamin K levels were nearly 1.5 times more likely to develop mobility limitation and nearly twice as likely to develop mobility disability compared to those with sufficient levels. This was true for both men and women.

"The connection we saw with low levels of circulating vitamin K further supports vitamin K's association with mobility disability," said senior author Sarah Booth, a vitamin K and nutrition researcher, and director of the HNRCA. "Although the two biomarkers we looked at are known to reflect vitamin K status, biomarker levels can also be affected by additional known or unknown factors. Further experiments to understand the mechanisms of biomarkers and vitamin K and their role in mobility are needed."

The study used data from 635 men and 688 women ages 70-79 years old, approximately 40 percent of whom were black, who participated in Health ABC. In Health ABC, mobility was assessed every six months for six to ten years through annual clinic visits and phone interviews in the intervening time. For the present analysis, the researchers defined mobility limitation as two consecutive semi-annual reports of having any amount of difficulty either with walking a quarter of a mile or climbing 10 steps without resting, and mobility disability as two consecutive semi-annual reports of having a lot of difficulty or inability to walk or climb the same amount.

Circulating vitamin K levels reflect the amount of vitamin K in the diet. The best food sources of vitamin K include leafy greens such as spinach, kale and broccoli and some dairy products. For an average adult, one cup of raw spinach provides 145 micrograms (mcg) of [vitamin](#) K1, or 181 percent of the Daily Value; one cup of raw kale provides 113 mcg, or 141 percent; and half of a cup of chopped boiled broccoli provides 110 mcg, or 138 percent.

**More information:** M Kyla Shea et al, Vitamin K Status and Mobility Limitation and Disability in Older Adults: The Health, Aging, and Body Composition Study, *The Journals of Gerontology: Series A* (2019). [DOI: 10.1093/gerona/glz108](https://doi.org/10.1093/gerona/glz108)

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