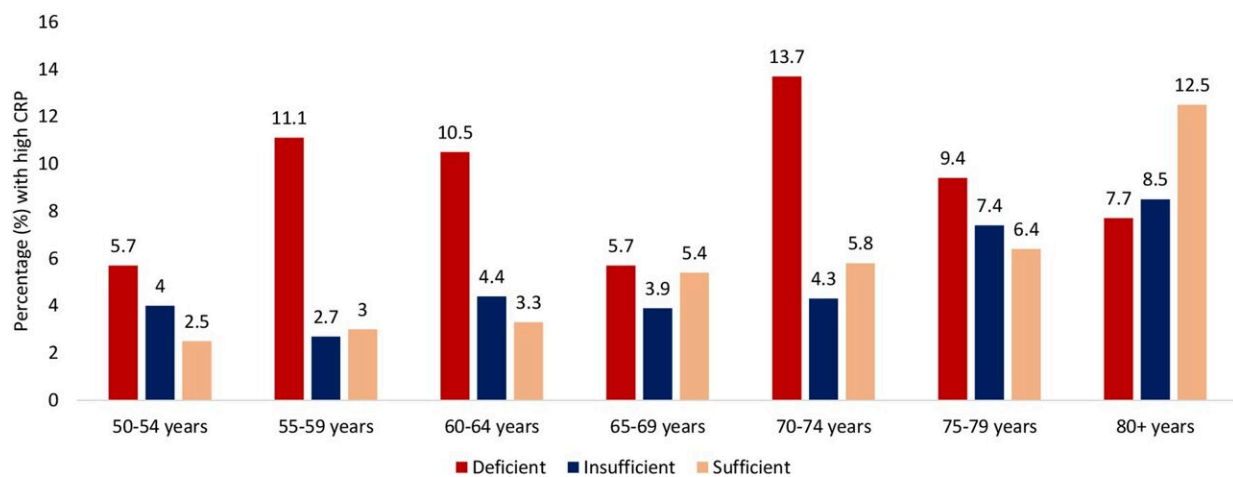


New study identifies association between lower levels of vitamin D and inflammation in older adults

July 24 2023



Percentage of the Irish older adult population with high CRP (>10 mg/dL) by age and vitamin D status. Credit: *PLOS ONE* (2023). DOI: 10.1371/journal.pone.0287169

Aging experts at Trinity College Dublin and the University of Limerick have shown associations of vitamin D status with C-reactive protein (CRP, a measure of inflammation) in older adults. The study has recently been published in the journal *PLOS ONE*.

CRP can be a blood measure of [inflammation](#) in the body. High levels can indicate infection while lower—but still higher than normal—levels

can indicate low-grade inflammation. Scientists think that this low-grade constant inflammation (which is common in older adults) can lead to a slow accumulation of damage and be a major risk factor for many of the chronic diseases of aging including cardiovascular disease, mental health decline, diabetes etc.

Anything that could help decrease CRP levels in the blood may have a positive impact on chronic disease prevention.

Vitamin D

Vitamin D (the "sunshine vitamin") is needed for bone health and recently has been linked with immune function. Previous research from the Irish Longitudinal Study On Aging (TILDA) has shown that one in eight older Irish adults are deficient in the vitamin with those most at risk including the oldest, smokers, those with low household incomes, smokers, those living with obesity.

Previous work from Professor Rose Anne Kenny and Dr. Eamon Laird has also reported on the association of vitamin D with COVID.

The new study used data from TILDA, and examined participants aged 50 years and over who were assessed at Wave 1 of the study and who provided measurement of vitamin D and CRP.

Key findings:

- The study finds that a deficient vitamin D status was associated with significantly higher CRP levels (inflammation).
- Having a sufficient vitamin D status reduced the risk of a high CRP level compared to being deficient
- These findings remained even after adjusting for other factors

such as physical activity, smoking and alcohol, obesity, [educational level](#), kidney function, biological sex and age.

- Overall, those who were younger, male, had tertiary education, not obese, a non-smoker, and had less than three [chronic diseases](#) had significantly lower CRP levels
- Factors that increased the risk of high CRP levels included: included obesity, smoking, being female, physical inactivity, chronic conditions and poorer kidney function and diabetes.
- These observations also provide reassurance for food policy makers that fortification of foods to increase levels of vitamin D could have the potential for health benefits and is not linked with adverse results for inflammation

Dr. Laird, lead author of the study, said, "This study is very important given the high prevalence of vitamin D deficiency and chronic disease in older adults living in Ireland. Our findings along with previous trials in this area suggest that optimizing vitamin D status to above deficient levels could help to benefit the inflammation pathway in community dwelling older adults.

"Given that the FSAI just recently changed the vitamin D intake guidelines for [older adults](#) to 15ug per day (600 IU), our findings should provide further reassurance for policy makers to show that maintaining a sufficient vitamin D status is actually linked with lower levels of inflammation and did not increase the risk. Remember vitamin D is one component: in order to have the lowest risk of inflammation people should think about [vitamin D](#) in combination with regular [physical activity](#), healthy lifestyle, adequate sleep and social interactions."

More information: Eamon Laird et al, Vitamin D status & associations with inflammation in older adults, *PLOS ONE* (2023). [DOI: 10.1371/journal.pone.0287169](https://doi.org/10.1371/journal.pone.0287169)

Provided by Trinity College Dublin

Citation: New study identifies association between lower levels of vitamin D and inflammation in older adults (2023, July 24) retrieved 27 April 2024 from <https://medicalxpress.com/news/2023-07-association-vitamin-d-inflammation-older.html>

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