

# Large study finds small associations between systemic inflammation and later dementia

July 19 2023

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The authors found associations between higher systemic inflammation levels and risk of being diagnosed with dementia 3-11 years later, although the increase in risk is small. Credit: Myriams-Fotos, Pixabay, CC0 ([creativecommons.org/publicdomain/zero/1.0/](https://creativecommons.org/publicdomain/zero/1.0/))

A study of data from about 500,000 people in the UK Biobank has

uncovered small but statistically significant associations between signs of systemic inflammation and later risk of dementia. Dr. Krisztina Mekli of The University of Manchester, UK, and colleagues present these findings in the open-access journal *PLOS ONE* on July 19, 2023.

Millions of people around the world have Alzheimer's disease or other types of dementia, and researchers are working to tease out the complex mechanisms behind these conditions. Prior research has suggested that inflammation—activation of the body's innate immune system—may play a contributing role in the onset of dementia.

To help clarify this potential role, Dr. Mekli and colleagues analyzed data from nearly 500,000 participants in a large, multifaceted health study called the UK Biobank. They evaluated the relationship between certain biological measures—[biomarkers](#)—of inflammation and participants' performance on various cognitive tests, assessed both at the same time as the biomarkers and years later, as well as if they were later diagnosed with dementia.

The analysis accounted for various demographic factors, other health factors, and whether participants had a variant of the *APOE* gene that is known to be associated with higher risk of dementia.

The researchers found that higher levels of inflammatory [biomarker](#) levels were associated with increased risk of dementia diagnosis three to eleven years later. Elevated inflammatory biomarkers were also associated with worse performance on certain cognitive measures, including tasks related to prospective memory, fluid intelligence, and [reaction time](#), both at baseline and four to thirteen years later.

These associations were small, but they were statistically significant, suggesting that systemic inflammation may contribute to dementia. While other known biomarkers, such as *APOE* status, appear to have a

stronger association with dementia, it is possible that measuring inflammatory biomarkers could be an additional useful tool for identifying people who may be at higher risk of developing dementia.

The authors note that this study is exploratory and that further research will be needed to better understand the inflammation-dementia link and its potential clinical applications.

Dr. Mekli adds, "In this study, we found associations between higher systemic inflammation levels and risk of being diagnosed with dementia 3-11 years later, although the increase in risk is small. This association of course does not mean causality, therefore further research is needed to understand and evaluate the potential mechanism. In addition, high levels of [inflammation](#) might be one of the biomarkers which helps to identify people who have elevated risk of developing [dementia](#) in the near future."

**More information:** Association between an inflammatory biomarker score and future dementia diagnosis in the population-based UK Biobank cohort of 500,000 people, *PLoS ONE* (2023). [DOI: 10.1371/journal.pone.0288045](#)

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