

Heavy metal cadmium may be tied to memory issues for some

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The heavy metal cadmium, which is found in the air, water, food and soil, is known to cause health problems. A new study published in the September 4, 2024, online issue of *Neurology* has examined whether thinking and memory skills were associated with cadmium exposure.

The researchers found no association when they looked at the group as a whole. However, when looking at Black and white people separately, they found that cadmium may be tied to problems with thinking and memory skills in white people. The study found no such association in Black people. The study does not prove that cadmium causes memory problems in white people; it only shows an association.

Cadmium is a highly toxic heavy metal that enters the body mainly through cigarette smoking, breathing polluted air and food. It is released into the environment through industrial and agricultural activities.

"With the high occurrence and high cost of dementia to families and to society, it's important to identify risk factors for early cognitive problems that could be affected by changes in people's behavior or in society," said study author Liping Lu, MD, Ph.D., of Columbia University in New York City.

The study involved 2,172 people with an average age of 64 and no problems with thinking or memory skills. Black people made up 39% of the participants and white people made up 61%. Levels of cadmium in the urine were tested at the beginning of the study. Participants took tests of thinking and [memory skills](#) every year and were followed for an average of 10 years.

During that time, 195 people developed cognitive impairment. When researchers looked at the overall group, they found no association between cadmium levels and cognitive impairment. However, when they looked at Black and white participants separately, they found that white people with high levels of cadmium were more likely to develop cognitive impairment. They found no association in Black people.

With participants divided into two groups based on cadmium levels, white people with high levels were twice as likely to develop cognitive

impairment as those with low levels, even after adjusting for other factors that could affect [cognitive impairment](#), such as physical activity, alcohol use and education. A total of 9.2% of those with high levels developed thinking and [memory](#) problems, compared to 6.7% of those with low levels.

Lu said one explanation for the difference between white and Black people could be cigarette smoking. After dividing the participants into three groups based on cadmium levels, researchers found that white people in the highest level smoked an average of 23 pack-years compared to nine pack-years for Black people in the highest level. Pack-years are a way to measure smoking over time. It is determined by multiplying the number of packs smoked per day by the number of years smoked. So, 23 pack-years is equal to one pack a day for 23 years, or two packs a day for 11.5 years, for example.

"These results need to be confirmed with studies that measure cadmium levels over time, include more people and follow people over a longer time, but there are many reasons to reduce exposure to [cadmium](#), whether it's through implementing policies and regulations for air pollution and drinking water or people changing their behaviors by stopping smoking or being around [cigarette smoke](#)," Lu said.

A limitation of the study was that [cadmium levels](#) in the urine were tested only at the beginning of the study and exposure may have changed over time.

More information: Liping Lu et al, Association of Urinary Cadmium Concentration With Cognitive Impairment in US Adults, *Neurology* (2024). DOI: 10.1212/WNL.0000000000209808 , [dx.doi.org/10.1212/WNL.0000000000209808](https://doi.org/10.1212/WNL.0000000000209808)

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