

# Are cardiac risk factors linked to less blood flow to the brain?

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Metabolic syndrome, a term used to describe a combination of risk factors that often lead to heart disease and type 2 diabetes, seems to be linked to lower blood flow to the brain, according to research by the University of Wisconsin School of Medicine and Public Health.

Dr. Barbara Bendlin, researcher for the Wisconsin Alzheimer's Disease Research Center and an assistant professor of medicine (geriatrics) at the UW School of Medicine and Public Health, said study participants with multiple risk factors connected to metabolic syndrome, including abdominal obesity, high blood pressure, [high blood sugar](#) and [high cholesterol](#) averaged 15 percent less blood flow to the brain than those in a control group, according to results of brain scans to measure [cerebral blood flow](#).

"We thought the cerebral blood flow measurements of the metabolic syndrome group would be lower, but it was striking how much lower it was," said Bendlin.

Although lower blood flow could result in an eventual reduction in [memory skills](#), Bendlin said it is not known if people with metabolic syndrome will get Alzheimer's disease.

"Having metabolic syndrome at middle age does have an effect on the brain, and there is some suggestion that if you have lower blood flow, certain types of [memory functions](#) are reduced," she said. "The key will be to follow these people over time, because we want to know if lower

blood flow will lead to a gradual [loss of memory](#) and cognitive skills. But it's too early to say if these people will develop Alzheimer's."

The study, presented today at the Alzheimer's Association International Conference in Vancouver, British Columbia, involved 71 middle-aged people recruited from the Wisconsin Registry for Alzheimer's Prevention (WRAP). Of this group, 29 met the criteria for metabolic syndrome and 42 did not.

Bendlin said the next steps will be to conduct additional brain scans on people with metabolic syndrome to get more specifics on why they have reduced cerebral blood flow.

"By comparing people with [metabolic syndrome](#) with those who don't, we don't know which of the risk factors are worst," she said. "Is having a high blood-glucose level worse than having high blood pressure or is it different than having abdominal obesity? All of these risk factors have been linked to increased risk for dementia, but they are clustered together. If we knew which ones were the worst, those would be the ones to target with specific treatments."

Provided by University of Wisconsin-Madison

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