

Insulin may slow Alzheimer's, study finds

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Inhaling a concentrated cloud of insulin through the nose twice a day appears to slow - and in some cases reverse - symptoms of memory loss in people with early signs of Alzheimer's disease, a new pilot study has found.

The study involved only 104 people and is considered very preliminary. But it suggests that a safe, simple and cheap measure that boosts flagging metabolism in key areas of the brain could hold off or possibly derail the progression of the devastating [neurological disorder](#) in its early stages. The results were published online Monday by the journal *Archives of Neurology*.

[Insulin](#) is a metabolic hormone best known for its role in treating diabetes, a condition in which the hormone is either insufficiently produced or poorly used by the body's organs. But in recent years, studies have found that people with diabetes and prediabetes are at heightened risk of developing Alzheimer's, and [autopsies](#) have shown that diabetics whose condition was tightly managed had fewer of the brain tangles and plaques that are the hallmark of disease. Studies involving animals have suggested that insulin deficiency in the brain may be a key factor in the progression of Alzheimer's.

Researchers from the Veterans Affairs' Puget Sound Health Care System in Washington state decided to test insulin on people without diabetes who had been diagnosed with mild to moderate Alzheimer's or amnesic [mild cognitive impairment](#), a disorder characterized by increased [forgetfulness](#) that often progresses to dementia. Study participants were

divided into three groups: 36 of them inhaled 20 milligrams of insulin twice a day for four months, 38 got 40 mg twice a day, and 30 were given a saline solution.

After two months of treatment, those treated with 20 mg of insulin had improved performance on a [memory test](#). The gains persisted after four months of treatment and were still evident two months after the insulin treatment stopped.

Patients who got the higher dose of insulin had no change in their memory abilities, while those who got the placebo saw a decline. The differences between those on insulin and those on the placebo were "small in absolute terms," the authors wrote. But they were robust enough that by generally accepted research standards, they are unlikely to have been the result of chance.

Subjects taking either dose of insulin were rated by their caregivers as holding steady in their overall social, mental and everyday functioning, while those on the sham medication were rated as having declined. And on physician-administered tests of cognitive function, subjects taking insulin showed less decline than those on the placebo.

In a subset of subjects who underwent additional measurements, researchers found that there were fewer amyloid plaque deposits, protein tangles and other physiological hallmarks of Alzheimer's in those whose memory improved most on the [insulin treatment](#) compared with those who had weak responses or were on the placebo.

But the persistence of insulin's effect was a mixed picture. Two months after the insulin treatments stopped, caregivers of subjects in all three groups noted similar declines in their overall daily function.

Dr. Jacobo Mintzer, an Alzheimer's expert at the Medical University of

South Carolina in Charleston who was not involved in the study, hailed the research as "a new way of thinking" about treating dementia.

"As a clinician, I would not tell my patients to get their hopes up," he said. "But as a scientist, I always get very encouraged when the paradigm shifts," as he said it has here.

An estimated 5.4 million Americans are believed to have Alzheimer's, according to the Alzheimer's Association. Scientists acknowledge that while they can diagnose the disease earlier and offer medications to temporarily slow the progression of symptoms, they have been stymied in their search for ways to prevent, halt or reverse it.

It will take a larger study involving more patients over a longer time to figure out whether nasally administered insulin merely slows the march of Alzheimer's or thwarts it, said Laurie Ryan, a neuropsychologist who directs clinical trials involving dementia at the National Institute on Aging, which funded the [pilot study](#).

In the meantime, she said, intranasal insulin has two things going for it: Insulin is already in wide use at relatively low cost, and the nasal inhaler allows it to be delivered directly and safely to the brain. That minimizes the risk of the hormone affecting blood sugar levels elsewhere in the body, which could be dangerous to kidneys, eyes and blood vessels.

"A safe, easy delivery system - those are things we'd love to see for any kind of treatment for Alzheimer disease," she said.

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