

Nutritional supplement may help prevent Alzheimer's, research suggests

January 10 2013, by Josh Barney

(Medical Xpress)—A nutritional supplement available over-the-counter may offer protection from Alzheimer's disease, a study by the University of Virginia and Northwestern University suggests.

Researchers at Northwestern and U.Va.'s School of Medicine set out to evaluate the effectiveness of chiro-inositol, a compound that occurs naturally in certain foods and is available as a [nutritional supplement](#), in protecting the brain from beta amyloid toxins, which cause Alzheimer's. They conclude, in a paper published this month in *The FASEB Journal*, that chiro-inositol "greatly enhances" insulin's ability to prevent damage to neurons by toxic peptides called ADDLs. The damage and loss of neurons is believed responsible for Alzheimer's.

The findings indicate potential for a new strategy for developing Alzheimer's disease treatments based on compounds already regarded as safe for human use, the researchers write.

"In Alzheimer's, it's been known for many years that the brain does not utilize glucose very well," U.Va. pharmacology professor emeritus Dr. Joseph Larner said. "Insulin is required to utilize glucose in the brain, just as it's required by muscle, liver and fat to stimulate [glucose metabolism](#). What has not been realized until very recently is that this inability of the brain to utilize glucose is caused by [insulin resistance](#). This insulin resistance in the brain has been referred to as type 3 diabetes."

Chiro-inositols essentially help overcome insulin resistance in the brain, the researchers believe. The study showed chiro-inositols greatly improved glucose use in primary cultures of neurons, significantly improving insulin's ability to prevent synapse damage when the cells were challenged with ADDL [peptides](#).

"Chiro is a nutraceutical that we believe sensitizes your brain to the effects of insulin," said David Brautigan, U.Va. professor of microbiology, immunology and [cancer biology](#). "This would presumably enhance [insulin action](#) and protect the brain from Alzheimer's."

"It's been shown that chiro-inositol is very safe," added Larner, a pioneer in the field of pharmacology. "It's been used in humans for quite a number of years now. I take it myself."

Encouraged by their findings, the researchers call for further investigation of chiro-inositols, including a clinical trial in humans and further development of drugs containing chiro-inositols. The research also opens new avenues to explore.

"There's been a big argument going on for years about whether insulin is made in the brain and how important insulin is in signaling in the brain. It was thought that glucose uptake in the brain was passive, not regulated by insulin," said U.Va.'s Michael Thorner, David C. Harrison Medical Teaching Professor of Internal Medicine. "It is now appreciated that insulin is in the brain and important for its metabolism. There may even be special forms of insulin in the [brain](#) to stimulate neurons and other cells."

More information: [www.fasebj.org/content/27/1/19 ... 5f-a3c9-427ade023b17](http://www.fasebj.org/content/27/1/19...5f-a3c9-427ade023b17)

Provided by University of Virginia

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