



Insulin Could Be Next Big Alzheimer's Treatment

ADR-funded study finds new links between diabetes and dementia



In a major scientific advance, researchers with Northwestern University have shown that insulin protects the brain's memory-forming synapses and slows or halts the memory loss caused by Alzheimer's disease, according to a study funded by Alzheimer's Disease Research.

By treating brain neurons with insulin and an insulin-sensitizing drug, the Northwestern scientists were able to keep toxic beta amyloid proteins from binding to synapses, thereby enabling the brain to process information and store memories.

"Therapeutics designed to increase insulin sensitivity in the brain could provide new avenues for treating Alzheimer's disease," says the study's senior author, Dr. William Klein. "Sensitivity to insulin can decline with aging, which presents a novel risk factor for Alzheimer's disease. Our results demonstrate that bolstering insulin signaling can protect neurons from harm."

"The discovery that anti-diabetic drugs shield synapses against [beta amyloid] offers new hope for fighting memory loss in Alzheimer's disease," adds lead author Fernanda G. De Felice.

The findings also give new credence to the idea that Alzheimer's disease is a form of brain diabetes. In related work, the Northwestern scientists found that beta amyloid proteins, left unchecked, strip nerve cells of their insulin receptors, rendering them insulin resistant.

ADR has contributed \$300,000 toward the work of Dr. Klein and his colleagues. "Without the generous support of Alzheimer's Disease Research donors, we would not have been able to come as far as we have in our continuing quest for a cure," said Dr. Klein.

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Diabetes Makes You More Vulnerable to Alzheimer's

Diabetics are at much higher risk of Alzheimer's disease and other forms of dementia. Their risk is even greater if their diabetes begins in middle age, says a study published in the journal *Diabetes*.

Researchers from the Study of Dementia in Swedish Twins found that contracting diabetes before the age of 65 made individuals 125% more likely to develop Alzheimer's disease.

Researchers cautioned that the risk may be even higher in the real world — in part because the higher mortality rate of diabetes can reduce sample sizes and because an estimated 30 percent of older people with diabetes go undiagnosed.

“Our results ... highlighted the need to maintain a healthy lifestyle during adulthood in order to reduce the risk of dementia late in life,” says study director Dr. Margaret Gatz.

According to the American Diabetes Association, nearly 21 million Americans currently have diabetes.

Please visit our website at

www.ahaf.org/alzheimers

Simply click through the site to learn more about what's new in the world of research, as well as important information about risk factors for Alzheimer's disease.



President's Corner

Taking care of your self

If you still don't believe that body health is the same thing as brain health, it's time to think again.

And this issue of Alzheimer's Research Review will give you plenty of reasons why. Study after study is pounding home the same message: the choices we make about our health can make all the difference in how our minds function.

Whether it's the food we put in our mouths, or the way we engage our brains and our bodies, we can take charge of our health destiny and, at the same time, reduce our chances of developing Alzheimer's disease.

Our special section on “Staying Healthy” will give you ideas for doing just that. If you haven't already, I encourage you to put some of these practices to work in your own life. By taking care of your mind and your body, you can help ensure that they will take care of you.

Brian K. Regan, Ph.D.

Please share this newsletter with someone you know who might be interested in learning about some of the latest advancements in research to prevent, treat and cure Alzheimer's disease. The *Alzheimer's Research Review* is published by Alzheimer's Disease Research, a program of the American Health Assistance Foundation, a nonprofit organization located at 22512 Gateway Center Drive, Clarksburg, Maryland 20871, 301-948-3244, 800-437-2423, www.ahaf.org.

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Staying Healthy

The combination of social, mental and physical stimulation is the best medicine for a healthy life. It can also be a great way to avoid Alzheimer's disease. Even if you've been diagnosed with Alzheimer's, regular exercise and a nutritious diet can slow the disease's progress and help you cope with its effects.



Keep your mind active

Research indicates that staying mentally active can help slow memory loss and perhaps even lower the risk of developing Alzheimer's disease. Children and young adults build up brain "reserves" by reading and

undertaking mental challenges, but older adults can build up their own reserves in similar fashion.

Among the mentally stimulating activities that can help form vital neural connections and buffer from cognitive decline:

- Learning to speak a new language
- Play a musical instrument
- Take up new hobbies
- Play board and card games
- Do crossword puzzles, brain teasers and word games
- Learning computer games
- Reading books, magazines and newspapers
- Writing and corresponding through mail and email

Other ways to provide mental stimulation include visiting museums, attending plays and even conversing and singing.

Keep your body in motion

In addition to lowering the risk of high blood pressure, stroke and cardiovascular diseases, exercise can help prevent or delay the onset of Alzheimer's disease. Indeed, new research suggests that exercise might actually

break down deposits of toxic amyloid precursor proteins in the brain.

Consequently, scientists suggest a combination of aerobic exercise and strength and flexibility training, which will have the added benefits of improving overall physical and mental fitness, releasing stress and maintaining a healthy weight.

Eat right

Scientists recommend a varied diet that includes vegetables, legumes (including beans, peas, and seeds), fruits, whole grain and fish. Avoid saturated fats and added sugars. Seek out foods with omega-3 fatty acids, including tuna and salmon, canola and olive oils, and nuts and seeds. And be on the lookout for foods high in antioxidants (vitamins C and E), including spinach, broccoli, cauliflower, berries, tomatoes, red grapes and carrots.



Thank you for thinking of Alzheimer's Disease Research!

Research Roundup

Fast food can slow down the brain

Mice fed a diet high in cholesterol, fat, and sugar – the nutritional content of most fast food – displayed brain symptoms similar to those found in early-stage Alzheimer's patients, according to a study by a Swedish medical university, the Karolinska Institutete.

Researchers say that, over a nine-month period, the fast-food diet appeared to increase the number of phosphate groups binding to tau, the substance that forms the neurofibrillary tangles common to the Alzheimer's brain. These tangles prevent brain cells from functioning normally and ultimately kill them.

The Swedish team also found that high levels of dietary cholesterol can inhibit a protein required for memory storage.

Taken together, these findings add to the mounting weight of evidence that diet can play a significant role in Alzheimer's disease prevention.

MRI scans could catch Alzheimer's in earliest stages

MRI scans can detect telltale shrinkage in brain regions attacked by Alzheimer's disease and can accurately diagnose the disease even before obvious symptoms appear, says a study by the Florida Alzheimer's Disease Research Center.

Published in the journal *Neurology*, the study offers new evidence of the diagnostic value of MRI brain

scans. “We advocate, based on these findings, that the criteria for the diagnosis of Alzheimer's disease should include MRI scans,” says the study's lead author, Ranjan Duara, M.D. “By incorporating MRIs into the assessment of patients with memory problems, early diagnosis can be standardized and done far more accurately.”

As a result, researchers say doctors can treat patients with disease-modifying drugs that keep memory loss from progressing into full-blown dementia.

Ginkgo biloba doesn't lower Alzheimer's risk

Taking the popular medicinal herb Ginkgo biloba will not lessen your chances of developing Alzheimer's disease, according to a large multicenter trial conducted by researchers at the University of Pittsburgh.

“Despite early indications that Ginkgo biloba has antioxidant and other properties that might preserve memory, this trial shows that, in fact, it has no impact on development of dementia and Alzheimer's disease,” says Steven T. DeKosky, M.D., the trial's principal investigator.

The trial's findings, published in the *Journal of the American Medical Association*, were the same both for healthy older adults and for those with mild cognitive impairment. Researchers also found that Ginkgo biloba offers no protection against heart disease or stroke.

Become a Year-Round Force in Alzheimer's Research

Monthly giving helps ADR reduce overhead

Many of our donors find that the easiest and most efficient way to give to Alzheimer's Disease Research is to make monthly contributions of \$10, \$20, \$100 or more.

Automatic payments are particularly effective because they save us the cost of stamps and envelopes – reducing our overhead and allowing us to allocate more of every dollar to the fight against Alzheimer's disease.

Becoming a monthly donor is easy to do, and you can even choose to earmark your gifts strictly for research. For more information on this unique way of giving, please contact Cristel Siaobungco at 1-800-437-2423.



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