

ALZHEIMER'S SCIENCE NEWS

FALL 2023



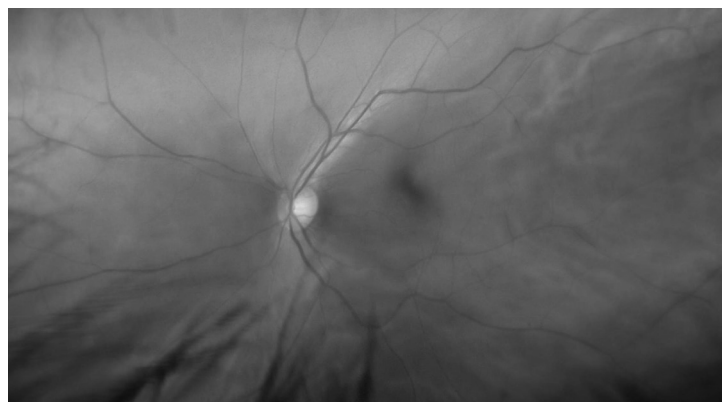
NEW AI MODEL COULD DETECT ALZHEIMER'S THROUGH RETINAL PHOTOGRAPHS

A team funded by Alzheimer's Disease Research has developed a first-of-its-kind artificial intelligence (AI) model that could potentially be used to detect Alzheimer's disease through photographs of the retina, a layer in the back of the eye, leading to earlier diagnosis and treatment.

Scientists used nearly 13,000 retinal, or fundus, photos from people with and without Alzheimer's to develop a "deep learning" AI algorithm. The model compared minute details in photos and, much like humans, learned how to recognize complex patterns—while producing accurate results more quickly.

The AI model could detect people with Alzheimer's disease despite the presence of eye diseases such as glaucoma and macular degeneration, said lead researcher Carol Cheung, PhD, from the Chinese University of Hong Kong.

Early detection is vital in delaying the progression of Alzheimer's. But since detection relies on a series of cognitive tests, neuroimaging studies, and cerebrospinal fluid studies, people are usually diagnosed only after they've suffered



Scientists are developing a new tool that could help screen for Alzheimer's during routine eye exams.

significant brain degeneration and cognitive decline.

"In the entire central nervous system, only the blood vessels and nerves in the retina allow direct visualization and analysis," said co-researcher Dr. Clement Tham Chee-yung. "Through noninvasive fundus photography, we can detect a range of changes that are associated with Alzheimer's."

These researchers hope this tool could one day be used to screen for Alzheimer's during routine eye exams.

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PRESIDENT'S CORNER

Today, thanks to you, we're making progress against Alzheimer's that was once scarcely imaginable. And every advance brings hope to people with this mind-stealing disease, as well as those who love them.

As you'll see in this newsletter, scientists we fund have developed a potential way to diagnose Alzheimer's earlier, when interventions can be more effective. They're also tapping into the body's sleep cycle to try to prevent this disease. Plus, as the holiday season nears, you'll find helpful tips for visiting a loved one with Alzheimer's.

Thank you for supporting groundbreaking research and providing valuable information to the public. Your generosity makes all we do possible.

Stacy Pagos Haller

SLEEPING PILL MIGHT SLOW OR STOP ALZHEIMER'S

Scientists supported by Alzheimer's Disease Research found that a specific sleep medicine may slow or stop the progression of Alzheimer's by reducing levels of toxic proteins in the brain.

Prior research has shown that nightly deep sleep helps the brain flush out toxins and waste material. In early stages of Alzheimer's, plaques of amyloid beta protein build up in the brain. Later, a second protein, tau, forms tangles that harm the brain's neurons and contribute to cognitive difficulties such as memory loss. Poor sleep is linked to higher brain levels of amyloid and tau.

Brendan Lucey, MD, and his team at Washington University in St. Louis studied people with no cognitive impairment to see how different doses of a prescription sleep aid, suvorexant, impacted amyloid and tau levels. Suvorexant blocks orexin, a substance in the brain that causes wakefulness.

Researchers took small amounts of cerebrospinal fluid before administering the suvorexant, and at regular intervals. In those who received the highest dose of medicine, amyloid levels dropped 10% to 20% and tau levels dropped 10% to 15%, compared to those who received a placebo.

"It would be premature for people who are worried about developing Alzheimer's to start taking suvorexant every night," Dr. Lucey said. However, this study suggests that sleep aids could ultimately help prevent cognitive decline.



Sleep medications could possibly delay cognitive decline by reducing proteins in the brain linked to Alzheimer's.

RESEARCHER SPOTLIGHT: Christian Crouzet, PhD

What structural and functional changes occur in the brain's vascular system as Alzheimer's disease progresses? And how does high blood pressure in midlife alter these dynamics?

Those are the questions that Christian Crouzet, PhD, at the University of California, Irvine, is trying to answer with help from an Alzheimer's Disease Research grant.

His study will help determine if commonly prescribed blood brain barrier-crossing angiotensin receptor blockers (blood pressure reducing medications)

improve cognition, slow the development of Alzheimer's, and preserve neurovascular changes during midlife hypertension. It could also lead to further studies to identify therapeutic time windows between midlife and late life to prevent cognitive decline by keeping the blood vessels that carry blood to the brain healthy.



**Christian
Crouzet, PhD**

TIPS FOR VISITING RELATIVES WITH ALZHEIMER'S

If you're visiting a loved one with Alzheimer's during the holidays, here are some tips for a pleasant visit.

Know that Alzheimer's commonly includes problems with:

- Communication: trouble finding words, expressing thoughts, or following conversations.
- Memory: repeating the same question, not recognizing a friend or family member right away, struggling to do familiar tasks.
- Behavior: agitation, irritability, and verbal or physical outbursts.



Clear, simple communication can make visiting a relative with Alzheimer's enjoyable for all.

Tips to help communicate:

- Always approach your loved one calmly from the front to avoid startling them.
- Reintroduce yourself and help them make the connection. For example, "Hi, Aunt Helen, I'm Greg, Ruth's son."
- Avoid arguing, criticizing, or correcting them.
- Remain calm and encourage them to express themselves as best they can, even if they struggle to articulate their thoughts or sound offensive.
- Speak slowly and keep your words and sentences short and simple.
- Remove distractions. Visit with them in a quiet living room, for instance, instead of a busy café.

Tips to help with memory:

- Reminisce about a favorite time together. Ask about immediate family members. Bring an old photo album or news clippings that may help trigger memories.

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TIPS FOR VISITING RELATIVES WITH ALZHEIMER'S

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- Engage. Talk about events in your life, the local community, and the world.
- Remember who they were before Alzheimer's. Were they an artist, choir member, or frequent traveler? Help them rediscover those passions.

Tips to help with behavior:

- Let your loved one repeat questions. When possible, gently redirect their attention to something else.
- Minimize stress. If they seem agitated or uncomfortable, find a way to make it easier.
- If possible, suggest physical activity like walking or dancing. Exercise is good for the body and brain.
- Play their favorite music. Music stays in the memory and may provide emotional and behavioral benefits.

Most importantly, accept how your loved one is and enjoy visiting with them. And take pictures to send to them after your visit!

Zoom In on Dementia & Alzheimer's

Sign up for our FREE monthly virtual discussion series with experts in the field to keep you informed about the latest findings—from treatments and genetics to risk reduction, supplements, and more! You can also ask questions during a live Q&A. All sessions will be recorded and available to watch on demand.

To register and catch up on previous episodes, visit:
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HELP FIGHT ALZHEIMER'S THROUGH A DONOR ADVISED FUND

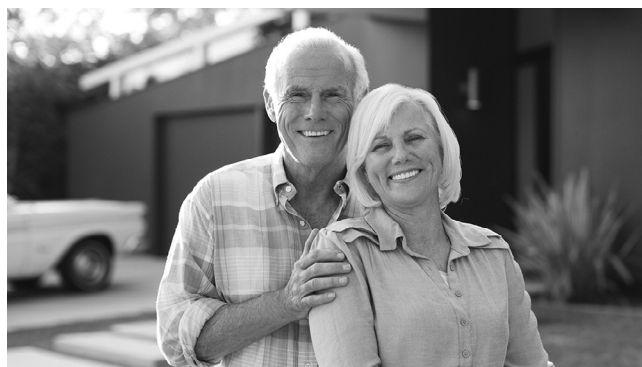
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DAFs help simplify your charitable giving and put you in control of your philanthropic endeavors. They allow you to:

- Recommend grants as you choose
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If you have a DAF with Fidelity Charitable, Schwab Charitable, or BNY Mellon, you can conveniently log in to your DAF at brightfocus.org/DAF-ADR to make your grant recommendation to Alzheimer's Disease Research.

To learn more about DAFs, contact Charlie Thomas, our Planned Giving Manager, at 301-556-9362 or plannedgiving@brightfocus.org.



DAFs help simplify your charitable giving
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Please share this newsletter with someone you know who might be interested in learning about some of the latest advancements in research to diagnose, prevent, treat, and cure Alzheimer's disease.

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