

ALZHEIMER'S SCIENCE NEWS

FALL 2021



NEW MODEL REVEALS GENETIC CHANGES IN CELL AGING PROCESSES

Most people with Alzheimer's disease develop the sporadic form of the disease, which only affects older people. However, most laboratory models used to study Alzheimer's use cells from people with a familial form of the disease, which strikes when people are relatively young.

While we know that the aging process plays a role in the development of this disease, we still lack a complete understanding. That's why several researchers, supported by an Alzheimer's Disease Research grant, are working to create a more accurate model of sporadic Alzheimer's.

Researchers took skin cells from people in their 70s and 80s with sporadic Alzheimer's and turned them into neurons using DNA binding proteins. Unlike other cell types, which can regenerate, neurons do not continue to grow and divide after early human development. Instead, they maintain the same mature, differentiated state for their (and our) entire life.

They found that these neurons retain the characteristics of aged brain cells but express genetic markers of cell stress, cell growth, and dedifferentiation, making them a more relevant model to study the age-dependent mechanisms that cause sporadic Alzheimer's than those currently used.

One important conclusion of this work is that Alzheimer's-related neuronal changes may be driven in part by cell aging processes, including regression to an earlier, less-developed state. It's almost as if the cells lose track of their identities as neurons, much like people with Alzheimer's who lose track of parts of their own identities.

Although these observed changes may be caused by aging-like processes, this work demonstrates that they are not a part of normal aging. Further research may determine whether they can be stopped with new therapies.



Researchers have made a more accurate model of sporadic Alzheimer's disease.

IN THIS ISSUE

- President's Corner
- New Model Reveals Genetic Changes in Cell Aging Processes
- Exercise and Alzheimer's Disease
- Opportunity Available to Join an Alzheimer's Clinical Study
- Communicating with a Person with Alzheimer's
- Healthy Recipe: Fish Tacos with Tomatillo Sauce



PRESIDENT'S CORNER

Perhaps the most encouraging news in Alzheimer's

research is the speed at which new information is being gathered. The disease was first identified in 1906; the link to beta-amyloid wasn't discovered until 1984; and two years later, tangles of tau were linked to the disease. And, thanks to advances in technology and technique, the understanding and potential treatments of Alzheimer's are growing exponentially.

I'm so grateful for generous donors like you that are helping Alzheimer's Disease Research provide critical funding to projects, which further accelerate the cure timeline. Science builds upon its discoveries, so every breakthrough we enable together today means more can happen tomorrow.

Thank you for being someone we can continuously count on to help accelerate promising studies to stop Alzheimer's once and for all.

Stacy Pagos Haller

EXERCISE AND ALZHEIMER'S DISEASE

Previous research has shown that exercise reduces the risk of developing Alzheimer's disease by up to 50% and protects against the disease by modulating the inflammation that is heavily dependent on brain immune cells called astrocytes. Astrocytes play a key part in synapse formation, as well as the function and control of neurotransmitters.



Exercise is important for a healthy brain and helps reduce the risk of Alzheimer's.

Eunhee Kim, PhD, at Massachusetts General Hospital, is investigating the neuroprotective effects of a new exercise hormone called irisin on people with Alzheimer's. There is growing evidence that exercise-induced enhancement or protection of cognitive function may be associated with the anti-inflammatory effects exercise has on the brain.

Astrocytes, key regulators of neuroinflammation, play an important role in mediating amyloid-beta clearance from the Alzheimer's brain.

Understanding the possible mechanisms through which physical activity may protect against Alzheimer's is necessary for the development of alternative approaches that build on the beneficial effects of exercise in the brain.

If irisin can offer exercise-mimicking benefits in people with Alzheimer's, it will have high potential as a novel drug target that holds promise for the elderly and less abled who may find exercising difficult.

Dr. Kim is grateful for the support you are providing, saying, "I would love to express my deepest gratitude to Alzheimer's Disease Research and its donors. Their exceptional generosity makes it possible to continue our research endeavors to make meaningful discoveries."

COMMUNICATING WITH A PERSON WITH ALZHEIMER'S DISEASE

Communicating with someone who has Alzheimer's disease, though challenging, is achievable. But because the disease affects the brain in ways that make communication difficult, we need to keep in mind some guidelines to facilitate the best possible communication.

In Person

Do everything you can to make sure they are comfortable. Approach from the front and do not startle them. Establish eye contact and call the person by name, showing your interest in them. Get down to eye level if needed. Let them initiate touch—they will come to you when ready.

If you need to give them directions, go one step at a time. This helps keep it simple, especially for those having difficulty with processing.

OPPORTUNITY AVAILABLE TO JOIN AN ALZHEIMER'S CLINICAL STUDY

The ADvance II Study is seeking volunteers for upcoming clinical research on the use of deep brain stimulation (DBS) for persons 65 years of age and older that have been diagnosed with mild (early-stage) Alzheimer's disease. DBS, already approved by the FDA to treat Parkinson's disease among other indications, uses an implanted device similar to a heart pacemaker to electrically stimulate precisely targeted areas of the brain to slow memory decline in those with Alzheimer's. European regulatory authorities approved DBS for use in Alzheimer's in 2017.



DBS is a proven treatment for Parkinson's, and researchers are hopeful this therapy will prove beneficial for people with Alzheimer's too.

Enrollment is taking place at up to 25 major medical sites in the United States and seven sites in Canada and Germany. To be eligible, participants must be age 65 or older; have been diagnosed with mild Alzheimer's; have a friend or family member who can attend study visits and provide reports on daily activities and cognitive function; and be in good general health. The decision to participate should be made by you and your family in consultation with your personal medical care team. The clinical trial is sponsored by the Minneapolis-based medical technology company, Functional Neuromodulation, Ltd.

This is a paid study with stipends for visit expenses as well as Medicare coverage. Request more information about the ADvance II Study at MildAlzheimersStudy.com or call (321) 307-9407.

Alzheimer's Disease Research, a BrightFocus Foundation program, has no financial interest in the outcome of this study.



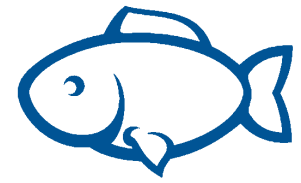
Virtually

Talking on the phone can be difficult. The calls we once made and were easy can become so quiet and one-sided. While there is no magic to having a fruitful call with someone with Alzheimer's, there are ways to enhance the dialogue.

Call at the time of day you know to be best for them. As a backup, be prepared with topics. Listen well to what they say and join them in their topic. Remember, sometimes conversations, whether via phone or in person, might just feel frustrating. If that happens, try again next time.

Your skills will improve each time.

These steps provide an excellent framework to use during your visits as you approach and converse with someone with Alzheimer's or other dementias.



HEALTHY RECIPE:

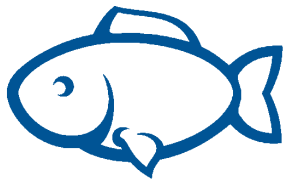
Fish Tacos with Tomatillo Sauce

Special Tip: Parsley can be substituted for cilantro.

Ingredients:

- 12 ounces whitefish (cod or tilapia)
- salt and pepper to taste
- 1 1/2 cups Napa cabbage (1/4 head)
- 1 teaspoon cumin
- 2 teaspoons paprika
- 1/2 teaspoon chili powder
- 1/4 cup yellow onion, diced
- 1 tablespoon lime juice
- 1/2 teaspoon lime zest
- 4 tablespoons tomatillo salsa
- 4 whole grain tortillas (6-inch diameter), lightly toasted or grilled

See reverse side for directions.



Fish Tacos with Tomatillo Sauce

(Continued from front)

Directions:

1. Season the fish with salt and pepper to taste. Bake or grill fish at 375° F for about 20 minutes, until internal temperature reaches 145° F.
2. Place remaining ingredients, except tortillas, in a mixing bowl and combine. Flake fish and place on tortillas. Place the cabbage and salsa mixture on top, and serve immediately

Yield: 4 servings



brightfocus.org/stopAD



You can advance scientific research while maximizing your tax benefits.

ADVANCE ALZHEIMER'S RESEARCH—TAX-FREE WITH A DONOR ADVISED FUND GIFT

A Donor Advised Fund is a type of giving program that allows you to combine the most favorable tax benefits with the flexibility to easily support your favorite charities. It allows you to put your charitable contributions in an account where they can be invested and grow tax-free.

Donor Advised Funds allow you to:

- Recommend grants to your favorite charity, like Alzheimer's Disease Research, as you desire.
- Give whenever you like.
- Receive immediate and maximum tax deductions as allowed by the IRS.

Visit brightfocus.org/DAF-ADR to learn more.



brightfocus.org/stopAD

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. This newsletter is published by Alzheimer's Disease Research, a program of BrightFocus Foundation.

The information in *Alzheimer's Science News* is provided as a public service and should not in any way substitute for the advice of a qualified health care professional, nor is it intended to constitute medical advice. BrightFocus Foundation does not endorse any medical product or therapy. Copies of *Alzheimer's Science News* are available upon request.

Alzheimer's Disease Research is a BrightFocus Foundation Program
22512 Gateway Center Drive, Clarksburg, Maryland 20871 • 855-345-6237 • brightfocus.org/stopAD
© BrightFocus Foundation, 2021



#30518