Research Blog for February

* **Memory Health Awarded UK Patent as Alzheimer’s Treatment**

The United Kingdom has awarded [Memory Health](https://www.memoryhealth.com/) a [patent](https://cdn.shopify.com/s/files/1/0098/4960/2127/files/Memory_Health_-_Patent_Document.pdf?11668) for an all-natural proprietary brain health supplement, also called Memory Health, developed to prevent and treat Alzheimer’s Disease in particular, and other neurodegenerative diseases.

Developed by European investigators, the Memory Health formula was ultimately tested in three clinical trials on healthy people and on those with AD.

The trial results showed improvement in memory and brain health for all who used the formula. Caregivers also reported that people with AD taking Memory Health experienced enhanced [memory, vision and overall quality of life](https://www.memoryhealth.com/pages/alzheimers-disease).

The oral supplement works by delivering essential nutrients in the form of antioxidants and anti-inflammatory agents directly to the brain. The product’s natural ingredients include carotenoids, omega-3s and natural vitamin E.

Memory Health has been available in the U.K. for three years, and was introduced in the United States two years ago. A U.S. patent is pending.

**Source:** [**https://alzheimersnewstoday.com/2020/02/11/memory-health-awarded-uk-patent-as-alzheimers-treatment/**](https://alzheimersnewstoday.com/2020/02/11/memory-health-awarded-uk-patent-as-alzheimers-treatment/)

* **Inflammatory Conditions Linked to Higher Risk of Alzheimer’s**

Alzheimer’s progression involves inflammatory changes in the brain, thought to be driven, at least in part, by the overproduction of pro-inflammatory molecules like TNF.

Excessive production of TNF is the root cause of many inflammatory diseases, including rheumatoid arthritis (RA), [ankylosing spondylitis](https://ankylosingspondylitisnews.com/what-is-ankylosing-spondylitis/) (AS), psoriasis, [psoriatic arthritis](https://www.mayoclinic.org/diseases-conditions/psoriatic-arthritis/symptoms-causes/syc-20354076), [ulcerative colitis](https://ibdnewstoday.com/ibd-overview/) (UC) and [Crohn’s disease](https://ibdnewstoday.com/ibd-overview/) (CD). These diseases can be treated effectively with TNF blocking agents.

TNF produced in the body (as in persons with inflammatory diseases) may directly enter the brain and affect inflammatory processes in the brain that drive Alzheimer’s disease, the researchers say.

The investigators at [Tetra Therapeutics](https://tetratherapeutics.com/), in collaboration with colleagues at [Case Western Reserve University](https://case.edu/) and [The MetroHealth System](https://www.metrohealth.org/), reviewed the medical records of 56 million patients with various types of inflammatory diseases.

Findings showed that Rheumatoid arthritis increased the risk of Alzheimer’s by 2.06-fold, as did Ankylosing Spondylitis (by 1.57-fold), psoriasis (by 1.37-fold), Ulcerative Colitis (by 1.82-fold), and Crohn’s Disease (by 2.33-fold).

Next, researchers examined whether the risk of Alzheimer’s could be reduced by inhibiting the activity of TNF with an FDA-approved blocking agent.

They discovered that among those with Rheumatoid arthritis, [etanercept](https://www.drugs.com/mtm/etanercept.html) (sold as [Enbrel](https://www.enbrel.com/) by [Amgen](https://www.amgen.com/)) reduced the risk of Alzheimer’s by 66%, [adalimumab](https://www.drugs.com/mtm/adalimumab.html) (sold as [Humira](https://www.humira.com/) by [Abbvie](https://www.abbvie.com/)) by 72%, and [infliximab](https://www.drugs.com/mtm/infliximab.html) (sold as [Remicade](https://www.remicade.com/) by [Janssen](https://www.janssen.com/)) by 48%. Likewise, among those with psoriasis, etanercept lowered the risk of Alzheimer’s by 53%, and adalimumab by 59%.

[Methotrexate](https://www.drugs.com/methotrexate.html) (brand name [Otrexup](https://www.otrexup.com/), among others), an anti-rheumatic medicine, also was found to reduce the risk of Alzheimer’s, especially among those who had been prescribed a TNF inhibitor and methotrexate.

While sex or race did not have a significant impact on the effects of treatment, younger patients seemed to benefit more from TNF inhibitor treatment than older patients. Given that anti-TNF biologics are powerful drugs, the researchers would like to conduct more prospective studies to understand their potential in treating or preventing Alzheimer’s disease.

**Source:** [**https://alzheimersnewstoday.com/2020/02/04/inflammatory-conditions-higher-risk-alzheimers-study/**](https://alzheimersnewstoday.com/2020/02/04/inflammatory-conditions-higher-risk-alzheimers-study/)

* **Can Healthy Diets, Regular Exercise, and Better Lifestyle Delay the Progression of Dementia in Elderly Individuals?**

Current healthcare costs for over 50 million people afflicted with Alzheimer’s Disease are about $818 million and are projected to be $2 billion by 2050. Unfortunately, there are no drugs currently available that can delay and/or prevent theprogression of disease in elderly individuals and in AD patients.

Women are at a higher lifetime risk of developing AD encompassing two-thirds of the total AD afflicted population. Only about 1-2% of total AD patients can be explained by genetic mutations in *APP*, *PS1*, and *PS2* genes. Several risk factors have been identified, such as Apolipoprotein E4 genotype, type 2 diabetes, traumatic brain injury, depression, and hormonal imbalance, are reported to be associated with late-onset AD.

Strong evidence reveals that antioxidant enriched diets and regular exercise reduces toxic radicals, enhances synaptic activity, and improves cognitive function in elderly populations. Current available data on the use of antioxidants in mouse models of AD and antioxidant(s) supplements in diets of elderly individuals were investigated. The use of antioxidants in randomized clinical trials in AD patients was also critically assessed.

Based on their survey of current literature and findings, the researchers  cautiously conclude that healthy diets, regular exercise, and improved lifestyle can delay dementia progression and reduce the risk of AD in elderly individuals and reverse subjects with mild cognitive impairment to a cognitively normal state.

**Source: Journal of Alzheimer’s Disease 72 (2019) S37–S58; DOI 10.3233/JAD-190232; IOS Press**

* **FDA to Review Adlarity as Skin Patch Treatment for Alzheimer’s Dementia**

The [U.S. Food and Drug Administration](http://www.fda.gov/) (FDA) has agreed to review a new drug application (NDA) for Adlarity — once-weekly transdermal (skin) patch delivering donepezil — to treat dementia in [Alzheimer’s disease](https://alzheimersnewstoday.com/what-is-alzheimers-disease/). The FDA’s decision on whether or not to approve Adlarity is expected by July 30.

If approved, this product could represent the first once-weekly transdermal formulation of donepezil for the treatment of Alzheimer’s disease.

Adlarity is an investigational formulation of donepezil, the same active ingredient found in orally administrated [Aricept](https://alzheimersnewstoday.com/alzheimers-disease-treatment/approved-drugs/aricept-donepezil/) (donepezil hydrochloride).

Aricept works by inhibiting acetylcholinesterase enzyme, that breaks down the neurotransmitter acetylcholine, to promote concentration of acetylcholine in the brain. This, in turn, increases the communication between remaining healthy nerve cells in the brain, and provides a temporary reprieve from dementia linked to Alzheimer’s, by improving cognition and function.

Aricept is only available as oral tablets that require daily administration, and is known to cause gastrointestinal side effects.

Adlarity patch can deliver donepezil in one of two doses, 5 mg or 10 mg, through the skin every 24 hours over a one-week period.

Adlarity allows a sustained and controlled delivery of donepezil, which could help overcome variations in the active ingredient concentration in the blood. Moreover, skin absorption could help bypass the gastrointestinal side effects of Aricept and is a potential option for patients with swallowing difficulties.

**Source:** [**https://alzheimersnewstoday.com/2020/01/29/fda-review-application-approval-adlarity-skin-patch-treatment-dementia-alzheimers/**](https://alzheimersnewstoday.com/2020/01/29/fda-review-application-approval-adlarity-skin-patch-treatment-dementia-alzheimers/)

* **Dietary flavonols and risk of Alzheimer dementia**

The objective of the study was to  determine whether dietary intake of flavonols is associated with Alzheimer’s dementia.

 The study was conducted among 921 participants of the Rush Memory and Aging Project (MAP), an ongoing community-based, prospective cohort. Participants completed annual neurologic evaluations and dietary assessments using a validated food frequency questionnaire.

**Results** Among 921 MAP participants who initially had no dementia in the analyzed sample, 220 developed Alzheimer dementia. The mean age of the sample was 81.2 years, with the majority being female. Participants with the highest intake of total flavonols had higher levels of education and more participation in physical and cognitive activities.

Dietary intakes of flavonols was inversely associated with incident Alzheimer dementia in models adjusted for age, sex, education, *APOE* ɛ4, and participation in cognitive and physical activities.).

**Conclusion** Higher dietary intakes of flavonols may be associated with reduced risk of developing Alzheimer dementia.

**Source: First published January 29, 2020, DOI:** [**https://doi.org/10.1212/WNL.0000000000008981**](https://doi.org/10.1212/WNL.0000000000008981)

* **Antipsychotics Are Associated with an Increased Risk for Traumatic Brain Injury in People with Alzheimer’s Disease**

​Alzheimer's disease (AD) patients who were prescribed antipsychotic medications had an increased risk of head injuries and traumatic brain injury (TBI), according to a large retrospective Finnish study published in the January 7 online edition of the *Journal of the American Geriatrics Society*.

Vesa Tapiainen, MD, and his colleagues at the University of Eastern Finland used detailed government records to identify 21,795 patients diagnosed with AD between 2005 to 2011 who were prescribed an antipsychotic medication; they also looked at data on an equal number of AD patients matched by age, sex, and time since diagnosis who did not take antipsychotics. They used nationwide registries to identify prescription use and reviewed community and hospital records to identify those who suffered a head injury, most of which was due to a fall, a known risk factor among older people and especially those with AD.

Among findings, the researchers reported that those taking antipsychotics had a 29 percent higher risk of head injuries: 1.65 per 100 people over a one-year period compared with 1.26 per hundred in non-users. These medications, given for a variety of reasons to dampen psychotic behavior and agitation, were also linked to a 22 percent higher risk of TBI.

The team also compared the risk in patients taking several different antipsychotic medications and found that those prescribed quetiapine had a 60 percent higher risk of TBI compared with those who took risperidone. Further studies are needed to understand why the risk is higher for quetiapine compared with risperidone, the investigators wrote.

**Source:** [**https://journals.lww.com/neurotodayonline/blog/breakingnews/pages/post.aspx?PostID=904**](https://journals.lww.com/neurotodayonline/blog/breakingnews/pages/post.aspx?PostID=904)

* **Evidence on Cognitive Impairment Screening in Older Adults Is Insufficient, Panel Says**

​Should adults older than 65 be screened for cognitive impairment if they are asymptomatic? Not necessarily, according to a US Preventive Services Task Force (USPSTF) recommendation statement, which suggested that the current evidence is insufficient to recommend whether cognitive impairment screening should be used to assess community-dwelling, asymptomatic older adults.

The recommendation, published on February 25, 2020 in [*JAMA*](https://jamanetwork.com/journals/jama/fullarticle/2761651), serves as an update to the 2014 recommendation by the USPSTF.

The panel based its recommendation on a review of published research through January 2019. The review included evidence on the harms and benefits of interventions and treatment for older adults with cognitive impairment and their caregivers and the accuracy of screenings in identifying cognitive impairment.

Although the studies reviewed do not collectively offer strong support for screening for treatment or cognitive impairment of cognitive deficits, the lack of evidence in the existing literature does not mean that screening is not beneficial at all, the editorialists noted.

Risk reduction for cognitive impairment includes stopping smoking and moderating alcohol intake; promoting healthful diet and physical activity; and preventing and managing hypertension, cardiovascular disorders, diabetes, and depression. Clinicians can recommend these approaches to reduce risk to all older adults without the need for any cognitive screening.

**Source:** [**https://journals.lww.com/neurotodayonline/blog/breakingnews/pages/post.aspx?PostID=905**](https://journals.lww.com/neurotodayonline/blog/breakingnews/pages/post.aspx?PostID=905)

* **Solanezumab and Gantenerumab Fail to Slow Memory Loss or Cognitive Decline in Early-onset Alzheimer’s, Study Finds**

Two investigational treatments, [solanezumab](https://alzheimersnewstoday.com/solanezumab/) and [gantenerumab](https://alzheimersnewstoday.com/gantenerumab-2/), failed to prevent memory loss or cognitive decline in patients with a rare, inherited form of [early-onset Alzheimer’s disease](https://alzheimersnewstoday.com/early-onset-alzheimers-disease/), who were enrolled in a Phase 2/3 clinical trials.

The study was led by researchers at [Washington University School of Medicine](https://medicine.wustl.edu/), in St. Louis, through its [Dominantly Inherited Alzheimer Network-Trials Unit](https://dian.wustl.edu/our-research/clinical-trial/?_ga=2.20927928.1878347783.1582213608-471599325.1582213608) (DIAN-TU).

It enrolled 194 participants and took place at 24 sites in Australia, Canada, France, Spain, the United Kingdom, and the United States. All participants had a genetic mutation for early-onset Alzheimer’s and had a mild form of the disease or were expected to develop Alzheimer’s within 15 years of enrolling in the study.

Initial analysis of the study data showed that its main objectives — to slow cognitive decline and prevent memory problems — were not achieved with solanezumab or gantenerumab.

**Source:** [**https://alzheimersnewstoday.com/2020/02/21/solanezumab-gantenerumab-fail-to-slow-memory-loss-cognitive-decline-early-onset-alzheimers-disease/**](https://alzheimersnewstoday.com/2020/02/21/solanezumab-gantenerumab-fail-to-slow-memory-loss-cognitive-decline-early-onset-alzheimers-disease/)

* **Biogen to Start Re-dosing Aducanumab in Alzheimer’s Patients From Halted Trials**

[Biogen](https://www.biogen.com/en_us/home.html) will soon launch an open-label trial to start re-dosing [aducanumab](https://alzheimersnewstoday.com/aducanumab/)  — an injectable treatment under development — to patients with [Alzheimer’s disease](https://alzheimersnewstoday.com/what-is-alzheimers-disease/) who participated in four studies [halted](https://alzheimersnewstoday.com/2019/03/22/phase-3-trials-aducanumab-alzheimers-halted/) in March 2019.

The trials were [halted](https://alzheimersnewstoday.com/2019/03/22/phase-3-trials-aducanumab-alzheimers-halted/) after a monitoring committee determined that aducanumab was not likely to produce meaningful benefits for patients, based on a futility analysis of the trials’ first 18 months of data.

Biogen reconsidered when an [additional three months of data](https://www.prnewswire.com/news-releases/alzheimers-association-statement-biogen-to-submit-aducanumab-results-in-early-alzheimers-to-us-fda-300943093.html) became available after the trials were stopped. The new analysis showed that the EMERGE trial met its primary efficacy measure, or endpoint, with aducanumab resulting in a significant slowing in the clinical decline of Alzheimer’s patients, compared with placebo.

Data also showed that a group of patients from ENGAGE — those who received the 10 mg/kg, high dose of aducanumab — also experienced significant benefits.

Improvements included better memory, orientation, language, and daily life abilities, such as conducting personal finances, performing household tasks, and independently traveling out of the house.

Clinical benefits were supported by a reduction in brain [amyloid](https://alzheimersnewstoday.com/alzheimers-disease-causes/) — a hallmark of Alzheimer’s disease — in a dose-dependent manner.

**Source:** [**https://alzheimersnewstoday.com/2020/02/19/biogen-to-start-re-dosing-aducanumab-in-alzheimers-patients-from-halted-trials/**](https://alzheimersnewstoday.com/2020/02/19/biogen-to-start-re-dosing-aducanumab-in-alzheimers-patients-from-halted-trials/)

* **New Carbon Nanotube Sensor Ably Spots Alzheimer’s via Proteins in Blood, Study Reports**

A new biosensor using neatly aligned [carbon nanotubes](https://nanoscalereslett.springeropen.com/articles/10.1186/s11671-017-1945-8) may bring scientists one step closer to a blood test for the early detection of [Alzheimer’s disease](https://alzheimersnewstoday.com/what-is-alzheimers-disease/).

The nanotubes were able to measure microscopic concentrations of Alzheimer’s main protein biomarkers in blood plasma, and reportedly distinguished Alzheimer’s patients from healthy people with an average accuracy of 88.6%.

Four molecules serve as the main biomarkers for Alzheimer’s disease: amyloid-beta 42, amyloid-beta 40, total tau protein (t-tau) and phosphorylated tau protein (p-tau).

Amyloid-beta 42 and 40 are two forms of the amyloid-beta protein that have different lengths and whose levels are higher-than-usual in the context of Alzheimer’s disease. Phosphorylated tau protein is a toxic version of the tau protein that clumps together to form the tangles that eventually result in the death of nerve cells.

The [psychological and neuroimaging tests](https://alzheimersnewstoday.com/what-is-alzheimers-disease/diagnosis/) that are currently used to diagnose Alzheimer’s are expensive and can be inaccurate. This causes many Alzheimer’s patients to be diagnosed late, when treatments are less effective or not at all helpful.

Diagnosis before the onset of symptoms might [significantly reduce the risk](https://www.thelancet.com/journals/laneur/article/PIIS1474-4422%2814%2970136-X/fulltext) of developing Alzheimer’s through actions like lifestyle modifications.

**Source:** [**https://alzheimersnewstoday.com/2020/02/25/neatly-arrayed-carbon-nanotubes-ably-detect-alzheimers-via-blood-protein-biomarkers-in-study/**](https://alzheimersnewstoday.com/2020/02/25/neatly-arrayed-carbon-nanotubes-ably-detect-alzheimers-via-blood-protein-biomarkers-in-study/)