

February 2018

Cause

1. A research collaboration between the University of Edinburgh, Hospital de San Pau, and Universitat Autònoma de Barcelona has revealed the way in which damage spreads throughout the brain, in people who have Lewy Body Dementia. Their study looked at the brain's synapses, the "bridges" between brain cells that are essential for memory formation. Deposits of the toxic protein, alpha-synuclein, were found on both sides of the synapse, leading the researchers to believe it can travel between cells.
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2. Researchers in California have discovered a possible trigger for the brain degeneration that occurs with dementia. Their findings, published in the *Nature Medicine* journal, suggest that damage to pericytes (cells that surround small blood vessels in the brain) may cause a breakdown in the brain-blood barrier, which results in changes in the brain. A protein, called fibrinogen, present in the blood, appears to be the initial trigger.
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3. A collaboration between Japanese and Australian scientists has seen the development of a blood test that can accurately detect Alzheimer's disease up to 20 years before symptoms start. The test identifies biological markers in blood plasma that show the accumulation of amyloid-beta proteins in the brain. The researchers say the test is ninety percent accurate and will make diagnosing Alzheimer's easier, more cost effective, and more accessible than the current options. The test will also mean clinical trials can be aimed at the appropriate population.
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4. New research conducted in humans and mice suggests that napping in the day and disrupted sleep at night could be an early indication of Alzheimer's disease. Scientists say changes in sleep are common as people age, but that those who experience interrupted sleep on a regular basis are more likely to have an accumulation of amyloid protein in the brain, a precursor for Alzheimer's. It has not yet been determined whether disrupted sleep is a cause of the disease, or visa versa, but these early studies do indicate that further investigation is warranted.
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Cure

1. Scientists from the University of South Florida claim that a specific form of brain training could improve cognition and decrease the risk of dementia in older people. "Speed of Processing" (SOP) training is reported to boost participants' ability to recognise objects and provide a protective benefit for up to ten years. Critics of the ACTIVE (Advanced Cognitive

Training in Vital Elderly) study say the results should be viewed with some caution due to several factors, such as the participants self-reporting their dementia (rather than being formally diagnosed), and the limited amount of brain training that was conducted. Further investigation is needed to fully determine the benefits of SOP training.

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2. Recent studies have claimed that lithium could potentially be a preventative treatment for dementia, with some researchers suggesting it should be added to our drinking water supplies. Lithium has long been used to treat bipolar disorder, and is known to assist in the repair of brain cells, and protect neurons against oxidative stress and inflammation. Animal studies have shown that the metal can improve memory and learning. However, studies in the human population have failed to prove conclusively that lithium in drinking water can have an effect on rates of dementia.

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3. Nicotinamide riboside (NR), a form of Vitamin B3, and its effect on Alzheimer's-related brain damage is the focus of new research conducted by scientists at the National Institute on Aging's Laboratory of Molecular Gerontology. Mice, genetically-engineered to develop the biological markers of Alzheimer's disease, were given NR in their drinking water over a period of three months, and their brains and cognitive function compared with those of normal mice. The NR-treated mice were found to have tau protein deposits in the brain, less DNA damage, and better neuroplasticity. The mice also produced more neurons from neuronal stem cells, and less neuronal death or damage, as well as performing better in physical, cognitive and behavioural tests.

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4. Researchers at Ohio State University's Wexner Medical Center, claim they can delay cognitive decline in Alzheimer's by using deep brain stimulation (DBS). DBS works in a similar way to a pacemaker in the heart, sending out electrical impulses at regular intervals. In this study, researchers implanted a DBS device near the frontal lobe, the area of the brain in which decision-making, focus, learning, judgement and attention is managed. The participants, and 100 control subjects who also had Alzheimer's, were then asked to take part in several tests to see how well they could manage simple tasks. In general, the DBS-treated participants retained more of their cognitive and daily functional abilities than those not being treated.

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5. Rheumatoid arthritis is an inflammatory condition characterised by pain, swelling and stiffness in joints. It develops when the body's immune system attacks cells that line the joints, and can also affect other body parts. Inflammation is also a feature of dementia. Scientists in the UK, using records from over 5000 people living with rheumatoid arthritis, have conducted a study, comparing patients who took disease-modifying anti-rheumatic drugs (DMARDs), particularly methotrexate, with patients who did not. Their findings showed that those on anti-inflammatory medications had approximately half the risk of developing dementia.

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Care

1. As little as one hour a week of social interaction can improve the quality of life for people with dementia, living in residential care, according to a new study by researchers in the UK. 69 English care homes took part in a trial involving more than 800 residents with dementia, with the results showing simple social interaction, such as chatting and discussing likes and dislikes, reduced levels of agitation and aggression and improved general wellbeing. People with moderately severe dementia showed the greatest improvement. Researchers say it is further proof that the national average of two minutes of social interaction each day for people with dementia is clearly inadequate and is contributing to ill-health and poor quality of life.

<https://www.theguardian.com/society/2018/feb/07/social-interaction-dementia-patients>

2. A new study, by Flinders University, has revealed that the annual cost of caring for a person living with dementia in residential aged care is around \$88,000, but also a large percent of these costs were pharmacological and 38 percent were related to hospital care. *Direct health and residential care costs of people living with dementia in Australian residential aged care*, looks at 541 individuals across 17 aged care, and highlights the need for a more holistic approach to dementia care, including reduction of anti-psychotic medications and other drugs, and greater investment in training and education of care staff.

<https://www.agedcareguide.com.au/talking-aged-care/realistic-cost-of-dementia-care-in-australia-released>

WA Research

Alzheimer's WA has commenced a collaborative research project with the National Ageing Research Institute (NARI), and a collaboration of national and international researchers, to develop and evaluate a dementia specialist community careworker training program. The study - Promoting Independence Through quality dementia Care at Home (PITCH), will involve Alzheimer's WA sharing their expertise in the development of person-centred focused education for community staff, and piloting the program with our own home care services. Alzheimer's WA is very excited to partner with NARI and the other research groups in the study on this important project that will lead to improved dementia skills and knowledge in the aged care workforce.

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