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Cause

1. Researchers in the U.S. believe they may have discovered the processes responsible for people with Alzheimer's becoming more agitated or aggressive in the early evening. By studying the biological clocks of male mice, the scientists were able to measure the intensity and frequency of aggressive interactions, and found that hostile behaviour was more likely to occur during the early evening hours. By mapping brain circuits in the mice and manipulating genes in the neurons that control the biological clock, they discovered they could change the patterns of aggression.
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2. Scientists from the Gladstone Institutes are working on the way the ApoE4 gene causes damage to human cells. Working on mouse models, they found that apoE4 behaves differently in different species, which affects the outcomes of drug trials ie some Alzheimer's drugs appear to work successfully in mice but then fail in human clinical trials. The researchers discovered that apoE4 significantly increases amyloid beta production in humans, causing abnormalities and cell death. They were able to erase the damage by changing the gene, with a small molecule, into a harmless ApoE3-like version.
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3. Researchers in the U.S. are working on the theory that Alzheimer's disease is caused by poor blood flow to the brain. Scientists from the John Hopkins University found that people with the ApoE4 gene have reduced brain blood flow, even before symptoms appeared. Similarly, mice, genetically engineered to have the human ApoE genes, showed evidence of damage to their capillaries, before any outward signs of the disease occurred. These findings support the theory that blood flow disruptions may be one of the earliest changes in Alzheimer's. Blood flow to the brain delivers energy, in the form of glucose and oxygen. Impairing this supply can alter the brain's chemistry and reduce the ability of neurons to fire. This results in brain swelling, lesions and the tell-tale formation of beta-amyloid plaques and tau tangles.
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4. A study conducted by researchers from the University of Eastern Finland and the German Center for Neurodegenerative Diseases has revealed a possible link between drugs used to treat epilepsy, and dementia. Using patient data from over 100,000 people, they discovered people who used antiepileptic drugs for over a year were up to 30% more likely to develop Alzheimer's. The risk increased even further if the drugs were those that impair cognitive function.
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Researchers in Spain have found that caffeine may worsen symptoms of Alzheimer's, such as anxiety. Previous research has suggested caffeine may have a beneficial, even preventative, effect on Alzheimer's, but tests in mice have shown the consumption of coffee and other caffeinated products significantly increases anxiety and other symptoms, including neophobia (fear of unfamiliar objects or situations) with no benefit to learning or memory.

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Cure

1. Reports that Ibuprofen could be a preventative for Alzheimer's are misleading, experts claim. Researcher, Patrick McGeer, recently [claimed](#) Ibuprofen could "wipe out" Alzheimer's, and that a simple saliva test could determine who would most benefit from its use. The potential preventative treatment suggested by the researchers is a group of drugs known as non-steroidal anti-inflammatory drugs (NSAIDs), rather than ibuprofen specifically. The researchers were working on the theory that, as AD is an inflammatory disease, starting on the drugs early enough (before symptoms appear) might prevent it progressing further. However, experts say the results of the testing (involving a very small sample of people) are far from conclusive.

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2. Changes to the way Alzheimer's disease is defined are being proposed by researchers in the U.S., with focus on biological changes in the body rather than clinical symptoms such as memory loss and cognitive decline. The changes would enable pharmaceutical companies to test drugs in people before symptoms appear, thus eventually improving people's chances of treatment before the disease had taken an irreversible toll. Under the new framework, Alzheimer's would be characterised by three factors : evidence of beta amyloid and tau proteins, evidence of neurodegeneration, and measures of severity using biomarkers and a grading system for cognitive impairment.

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Care

1. An aged care facility in California is taking reminiscence therapy to a new level, with its 1950s-themed day care unit. Trained staff guide people with dementia through 14 activity centres set up as shop fronts, such as a vintage clothing store, where they can try on clothes, an old-school gas station, where they can sit in a classic 1950s car, and a retro full-service diner. All aspects of the centre are designed to stimulate memories and help to engage people living with dementia, using reminiscence to encourage conversation and connection with the present.

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