# Antiviral treatments linked to reduced Alzheimer’s risk in patients with herpes virus



Recent studies have illuminated a surprising connection between herpes simplex virus type 1 (HSV-1) and Alzheimer's disease, proposing that antiviral medications might mitigate the risk of developing this debilitating condition. The link stems from research suggesting that HSV-1, a virus responsible for cold sores, may lurk in the body for years, only to reactivate later in life, potentially triggering dementia-like symptoms.

The most significant among these studies, a large-scale analysis involving over 344,000 participants in the United States, revealed that individuals with a history of HSV-1 infection exhibited an alarming 80 per cent increased risk of developing Alzheimer's. This study, carried out by researchers from Gilead Sciences and the University of Washington, accounted for a variety of confounding factors, reinforcing the association's strength. Notably, only 0.44 per cent of participants with Alzheimer's had a prior HSV-1 diagnosis, compared to 0.24 per cent of those without the disease, hinting at a profound connection between the virus and neurodegenerative disorders.

Further investigation found that those who received antiviral treatments for HSV-1 were 17 per cent less likely to develop Alzheimer's than individuals who did not receive treatment. Out of the 2,330 participants with an HSV-1 history, 40 per cent had been prescribed antiviral medication. This suggests that medications like aciclovir, commonly used to treat herpes virus infections in the UK, may confer vital protective benefits against cognitive decline.

While these findings are promising, the precise mechanisms by which HSV-1 might influence Alzheimer’s risk remain under investigation. Viral infections, especially HSV-1, have been associated with inflammatory processes in the brain, which might exacerbate neurodegeneration—a hypothesis further supported by research indicating that HSV-1 DNA is present in amyloid plaques typical of Alzheimer's disease.

Additionally, the implications of other herpes viruses, such as HSV-2 and varicella zoster virus, have been explored. Both these viruses were found to correlate with increased Alzheimer’s risk, which underscores the potential role of viral infections in the onset of dementia. Notably, a study from the University of Texas Medical Branch drew a link between head injuries and reactivation of dormant herpes viruses, adding another layer of complexity to the relationship between viral infections and neurodegenerative diseases.

Dr. Tara Spires-Jones from the University of Edinburgh acknowledged the robustness of this emerging research narrative but cautioned against jumping to conclusions. She noted that since HSV-1 is exceedingly common and the connection to Alzheimer’s is not deterministic, many infected individuals do not develop the disease. Further research is essential to deepen our understanding of these links and discern effective protective strategies against Alzheimer’s.

In this context, recent developments in vaccine research have also emerged. A notable study revealed that the shingles vaccine, Shingrix, could potentially reduce dementia risk by 17 per cent compared to its predecessor, Zostavax. Such findings offer a glimpse into the possibility that broader vaccination efforts against herpes viruses may play a vital role in public health strategies aimed at reducing dementia prevalence.

While some experts call for caution, citing limitations in existing studies—such as reliance on insurance records and self-reported symptoms—these findings have catalysed interest in antiviral treatments as a strategy in the prevention of Alzheimer’s disease. Dr. Richard Oakley of the Alzheimer’s Society highlighted the association between cold sore infections and Alzheimer’s but underscored the necessity for more rigorous research to establish cause and effect.

As the scientific community continues to explore the intersections of viral infections and neurodegenerative diseases, these investigations could pave the way for groundbreaking preventive measures that may reshape the landscape of Alzheimer’s treatment and prevention.

### Reference Map

1. Paragraph 1: [[1]](https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html), [[2]](https://www.ft.com/content/4d2b7a67-0541-4fc2-8105-11ba69a0cb96), [[3]](https://www.utmb.edu/news/article/utmb-news/2025/02/27/new-study-links-herpes-simplex-virus-infections-to-increased-risk-of-dementia)
2. Paragraph 2: [[1]](https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html)
3. Paragraph 3: [[1]](https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html), [[3]](https://www.utmb.edu/news/article/utmb-news/2025/02/27/new-study-links-herpes-simplex-virus-infections-to-increased-risk-of-dementia), [[4]](https://www.ft.com/content/d0aaf521-8f24-444d-86b7-c260ae7909a6)
4. Paragraph 4: [[2]](https://www.ft.com/content/4d2b7a67-0541-4fc2-8105-11ba69a0cb96), [[6]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7882534/)
5. Paragraph 5: [[1]](https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html), [[5]](https://www.alzheimers.org.uk/news/2024-07-25-shingles-vaccine-may-reduce-risk-dementia)
6. Paragraph 6: [[1]](https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html), [[3]](https://www.utmb.edu/news/article/utmb-news/2025/02/27/new-study-links-herpes-simplex-virus-infections-to-increased-risk-of-dementia)
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8. Paragraph 8: [[1]](https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html), [[7]](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7882534/)

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## Bibliography

1. <https://www.independent.co.uk/news/health/alzheimers-dementia-treatment-prevention-herpes-cold-sores-anti-flu-medicine-b2755088.html> - Please view link - unable to able to access data
2. <https://www.ft.com/content/4d2b7a67-0541-4fc2-8105-11ba69a0cb96> - A study by Tufts and Oxford universities found that repeated head injuries may trigger Alzheimer's disease by reactivating dormant herpes viruses in the brain. Using lab-grown mini-brains, the research showed that head traumas activated herpes simplex virus type-1 (HSV-1), leading to amyloid plaques and tau protein tangles, hallmarks of Alzheimer's. This suggests that antiviral and anti-inflammatory drugs might be effective in preventing Alzheimer's post head injury. Another related study found that HSV-1 accelerates tau protein formation, which could initially protect but later harm brain cells, exacerbating neurodegeneration. The research supports the link between viruses and dementia, highlighting potential new treatment strategies.
3. <https://www.utmb.edu/news/article/utmb-news/2025/02/27/new-study-links-herpes-simplex-virus-infections-to-increased-risk-of-dementia> - A study from the University of Texas Medical Branch found that individuals with a history of herpes simplex virus (HSV) infections face a significantly higher risk of developing dementia, including Alzheimer’s disease. The findings, published in the Journal of Alzheimer’s Disease, highlight a critical link between HSV-1, which primarily causes oral herpes, and HSV-2 infections, which cause genital herpes, and neurodegenerative disease progression. Dr. Giulio Taglialatela, senior author and director of the Moody Brain Health Institute at UTMB, emphasized the need for more research into the mechanisms underlying HSV's contribution to cognitive decline and whether such mechanisms can be targeted as a preventive strategy against dementia.
4. <https://www.ft.com/content/d0aaf521-8f24-444d-86b7-c260ae7909a6> - Research suggests that a vaccine against the viral infection shingles (herpes zoster) could reduce the risk of dementia. People vaccinated with Shingrix, a recombinant vaccine, lived an average of 164 more days without a dementia diagnosis compared to those given a predecessor vaccine. The study, involving 200,000 people, showed that Shingrix reduces the risk of dementia by 17% compared to Zostavax, the previous vaccine. These findings could have significant implications for older adults, health services, and public health if validated in clinical trials. Further research is needed to understand how Shingrix might biologically prevent dementia.
5. <https://www.alzheimers.org.uk/news/2024-07-25-shingles-vaccine-may-reduce-risk-dementia> - A study published in Nature Medicine found that the Shingrix vaccine, which prevents shingles caused by the varicella-zoster virus, may reduce the risk of developing dementia. The research analyzed data from over 200,000 individuals and found that those vaccinated with Shingrix had a 17% lower risk of dementia compared to those who received the previous vaccine, Zostavax. The study suggests that targeting herpes viruses like varicella-zoster could be a promising strategy to reduce dementia risk, but further research is needed to confirm these findings and understand the underlying mechanisms.
6. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7882534/> - A registry-based cohort study in Sweden involving 265,172 individuals aged 50 and above found that antiviral treatment was associated with a decreased risk of dementia. The study revealed that individuals with herpesvirus infections who received antiviral drugs had a reduced long-term risk of developing dementia, with an adjusted hazard ratio of 0.89. In contrast, those with herpes infections who did not receive antiviral treatment had an increased risk, with an adjusted hazard ratio of 1.50. These findings support the hypothesis that herpesviruses play a role in the pathogenesis of Alzheimer's disease and suggest that antiviral treatment may offer protective benefits.
7. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7882534/> - A registry-based cohort study in Sweden involving 265,172 individuals aged 50 and above found that antiviral treatment was associated with a decreased risk of dementia. The study revealed that individuals with herpesvirus infections who received antiviral drugs had a reduced long-term risk of developing dementia, with an adjusted hazard ratio of 0.89. In contrast, those with herpes infections who did not receive antiviral treatment had an increased risk, with an adjusted hazard ratio of 1.50. These findings support the hypothesis that herpesviruses play a role in the pathogenesis of Alzheimer's disease and suggest that antiviral treatment may offer protective benefits.