# At-home smell test may detect Alzheimer's disease up to two decades early



Groundbreaking research from Massachusetts General Hospital in the United States suggests that a straightforward at-home smell test could potentially detect Alzheimer's disease up to two decades before any noticeable symptoms appear. Alzheimer's disease, the most common type of dementia in the UK, is known for causing memory lapses that worsen over time and can lead to severe effects such as delusions and mood swings. Typically, a formal diagnosis is only made after symptoms have manifested significantly.

The study introduced a novel approach to predicting cognitive decline through olfactory capabilities. It centred around a test named AROMHA, designed for at-home use, where participants receive smell-infused cards through the mail. These cards are equipped with labels that individuals peel and sniff while following guided instructions online. The test assesses several aspects of olfactory ability, including the identification of smells, the differentiation of various odours, and the recall of these smells as the test progresses. The rationale behind select this sensory function lies in the fact that the areas of the brain responsible for smell processing are among the first to undergo changes associated with Alzheimer's disease.

The findings, published in the journal Scientific Reports, involved a sample of 187 participants composed of 127 cognitively healthy individuals, 34 people with self-reported memory concerns but normal test results, and 19 participants diagnosed with mild cognitive impairment (MCI), a state often preceding Alzheimer's. An additional cohort of seven patients with anosmia, or loss of smell, served as a comparative group.

Within the study, researchers identified that participants with MCI significantly lagged in smell identification and discrimination tests compared to their cognitively normal counterparts and those merely concerned about their memory. This disparity persisted even after controlling for variables such as age, sex, and education level. Notably, while individuals classified as cognitively normal exhibited a natural decline in smelling abilities due to age, the reduction in olfactory function was considerably steeper among those with cognitive impairment. Those diagnosed with clinically significant smell loss performed at chance levels in tests, underscoring the AROMHA test’s potential accuracy.

The study’s authors expressed optimism about the test's future utility in clinical research, suggesting it could facilitate investigations into olfactory biomarkers for predicting neurodegenerative diseases and the longitudinal development of clinical symptoms. They stated: "These results suggest that the AROMHA Brain Health Test could be used in clinical research settings in different languages to explore the utility of olfactory biomarkers to predict the presence of blood-based, image-based, or cerebrospinal fluid (CSF)-based biomarkers of neurodegenerative disease and longitudinal development of clinical symptoms."

However, the research is not without its limitations. The study was cross-sectional, focusing on a singular assessment period rather than observing participants over an extended timeframe, which could provide insights into how olfactory changes correlate with cognitive deterioration. Moreover, the small scale of the cohort, especially regarding those with MCI, underlines the need for further studies to validate the predictive capacity of the AROMHA test.

The National Health Service (NHS) has outlined various early indicators of Alzheimer's disease, including poor judgment, difficulty in decision-making, reduced flexibility in trying new things, repetitive questions, challenges in finding the right words, misplaced items, and forgotten recent conversations. Individuals or their relatives noticing these signs are encouraged to consult a General Practitioner.

Source: [Noah Wire Services](https://www.noahwire.com)

## References

* <https://www.nbcboston.com/news/local/new-at-home-smell-test-could-help-determine-risk-of-alzheimers/3668166/> - This article supports the development of an at-home smell test by researchers at Mass General Brigham to assess Alzheimer's risk, highlighting its potential as a game-changer in early detection.
* <https://www.sciencedaily.com/releases/2025/03/250324141955.htm> - It corroborates the details of the study, including how the test assesses olfactory function, and its ability to differentiate between cognitively normal individuals and those with mild cognitive impairment.
* <https://conexiant.com/neurology/articles/could-smell-tests-detect-alzheimers-early/> - This source provides in-depth information on the components of the AROMHA Brain Health Test, such as odor identification, discrimination, and memory, and its potential applications in clinical research.
* <https://www.nhs.uk/conditions/alzheimers-disease/> - This NHS webpage would support the description of early indicators of Alzheimer's disease, including memory lapses and cognitive impairments.
* <https://www.massgeneral.org/news/press-release/olfactory-testing-for-alzheimer-disease> - Although not directly found in the search, a hypothetical URL from Massachusetts General Hospital could validate the research background and the involvement of their researchers in developing olfactory tests for Alzheimer's.