

# Eye test could spot Alzheimer's earlier

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**The test, which examines blood vessels at the back of the eye, has the potential to spot the disease decades before symptoms appear** ANDREW BROOKES/GETTY IMAGES

The prospect of being tested for Alzheimer's disease while visiting an optician has moved closer thanks to a refined eye test that scientists hope will be able to detect the condition.

The test, which examines microscopic blood vessels at the back of the eye, has the potential to spot the disease decades before clinical symptoms appear, experts said after new trials showed promising results.

It comes as a separate large study added to evidence that exercise, a good diet and giving up smoking could be important in staving off Alzheimer's.

Diagnosing the condition at present involves a brain scan, a spinal tap to analyse cerebrospinal fluid or, more frequently, a doctor assessing symptoms. The new test uses an imaging technique, optical coherence tomography angiography (Octa), to examine blood vessels in the retina that are finer than the width of a human hair.

Researchers believe that changes in these retinal vessels may mirror changes in the brain's blood supply.

Scientists used Octa to compare the retinas of 39 Alzheimer's patients, 37 people with mild cognitive impairment and 133 "healthy" individuals with normally functioning brains.

They found that the blood vessel network was less dense in the Alzheimer's patients compared with the other groups. In addition, a specific layer of the retina was thinner in participants with Alzheimer's.

The study, published in the journal *Ophthalmology Retina*, builds on previous research identifying retinal abnormalities as possible signs of Alzheimer's. It was funded by the US government to explore whether eye tests could be used to screen for the degenerative condition at its earliest stages.

Despite billions spent on research, the cause of Alzheimer's, which affects about 500,000 Britons, is unknown and a cure remains elusive.

Separately, a study of British brain health found that habits such as smoking and diseases such as diabetes and obesity were linked to shrunken, less healthy brains. The results showed that lifestyle changes could be key defences against dementia, the researchers said.

They examined MRI scans of the brains of 9,772 people, aged between 44 and 79, who are enrolled in the UK Biobank study. The scientists looked for associations between brain structure and seven measurements known to affect the health of the vascular system, including high blood pressure, diabetes, obesity and whether a person smokes.

All but one of the risk factors — high cholesterol — were linked to greater brain shrinkage, less grey matter and less healthy white matter in the brain. The more vascular risk factors a person had, the poorer their brain health. The study was published in the *European Heart Journal*.