

# Eye health is related to brain health

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People with mild vascular disease that causes damage to the retina in the eye are more likely to have problems with thinking and memory skills because they may also have vascular disease in the brain, according to a study published in the March 14, 2012, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

Women 65 or older who have even mild retinopathy, a disease of blood vessels in the retina, are more likely to have cognitive decline and related vascular changes in the brain, according to a multi-institutional study led by scientists at the University of California, San Francisco (UCSF).

The findings suggest that a relatively simple eye screening could serve as a marker for cognitive changes related to vascular disease, allowing for early diagnosis and treatment, potentially reducing the progression of cognitive impairment to dementia.

As retinopathy usually is caused by Type II diabetes or hypertension, a diagnosis could indicate early stages of these diseases, before they are clinically detectable. Early diagnosis could allow for lifestyle or drug interventions when they might be most effective.

“Lots of people who are pre-diabetic or pre-hypertensive develop retinopathy,” said the lead author of the study, Mary Haan, DrPH, MPH, UCSF professor of epidemiology and biostatistics. “Early intervention might reduce the progression to full onset diabetes or hypertension.”

The results, reported in the March 14, 2012, online issue of *Neurology*,

were based on data from the Women's Health Initiative Memory Study and the Site Examination study, two ancillary studies of the Women's Health Initiative Clinical Trial of Hormone Therapy.

In the study, the team followed 511 women with an average starting age of 69, for 10 years. Each year, the women took a cognition test focused on short-term memory and thinking processes. In the fourth year, they received an exam to assess eye health. In the eighth year, they received a brain scan.

Of the full group of women, 39 women, or 7.6 percent, were diagnosed with retinopathy. On average, these women scored worse on the cognition test than the other women. They had more difficulty, for instance, recalling a list of several words five minutes after hearing them.

The women with retinopathy also had more damage to the blood vessels of the brain. They had 47 percent more ischemic lesions, or holes, in the vasculature overall and 68 percent more lesions in the parietal lobe. The lesions, associated with vascular disease and sometimes stroke, are believed to be caused by high blood pressure. They also had more thickening of the white matter tracks that transmit signals in the brain, which also appear to be caused by high blood pressure.

Notably, the women did not have more brain atrophy, which is associated with Alzheimer's disease. This result indicates that retinopathy is a marker of neurovascular disease rather than Alzheimer's disease, according to Haan.

Co-author Mark A. Espeland, PhD, of Wake Forest University School of Medicine conducted the analysis of the data. The senior author of the study is Kristine Yaffe, MD, UCSF professor of psychiatry, neurology and epidemiology and biostatistics.

**More information:** The paper: [www.neurology.org/content/earl...e31824d9655.abstract](http://www.neurology.org/content/earl...e31824d9655.abstract)

Accompanying editorial: [www.neurology.org/content/earl ...31824d9655/suppl/DC1](http://www.neurology.org/content/earl...31824d9655/suppl/DC1)

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