

Why do age-related macular degeneration patients have trouble recognizing faces?

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Abnormalities of eye movement and fixation may contribute to difficulty in perceiving and recognizing faces among older adults with age-related macular degeneration (AMD), suggests a study "[Abnormal Fixation in Individuals with AMD when Viewing an Image of a Face](#)" appearing in the January issue of *Optometry and Vision Science*, official journal of the American Academy of Optometry.

Unlike people with normal vision focus, those with AMD don't focus on "internal features" (the eyes, nose and mouth) when looking at the image of a face, according to the study by William Seiple, PhD, and colleagues of Lighthouse International, New York. They write, "Abnormal eye [movement patterns](#) and fixations may contribute to deficits in face perception in AMD patients."

When Viewing Famous Face, AMD Patients Focus on External Features

The researchers used a sophisticated technique called optical [coherence tomography](#)/scanning laser ophthalmoscopy (OCT-SLO) to examine the interior of the eye in nine patients with AMD. Age-related macular degeneration is the leading cause of vision loss in older adults. It causes gradual destruction of the macula, leading to blurring and loss of central vision.

Previous studies have suggested that people with AMD have difficulty

perceiving faces. To evaluate the possible role of abnormal eye movements, Dr Seiple and colleagues used the OCT-SLO equipment to make microscopic movies of the interior of the eye (fundus, including the retina and macula) as the patients viewed one of the world's most famous faces: the [Mona Lisa](#).

This technique allowed the researchers to record eye movements and where the patients looked (fixations) while looking at the face. They compared the findings in AMD patients to a control group of subjects with normal vision.

The results showed significant differences in eye movement patterns and fixations between groups. The AMD patients had fewer fixations on the internal features of the Mona Lisa's face—eyes, nose, and mouth. For controls, an average of 87 percent of fixations were on internal features, compared to only 13 percent on external features. In contrast, for AMD patients, 62 percent of fixations were on internal features while 38 percent were on external features.

The normal controls also tended to make fewer and shorter [eye movements](#) (called saccades) than AMD [patients](#). The differences between groups did not appear to be related to the blurring of vision associated with AMD.

Some [older adults](#) with AMD report difficulties perceiving faces. While the problem in "processing faces" is certainly related to the overall sensory visual loss, the new evidence suggests that specific patterns of eye movement abnormalities may also play a role.

Dr Seiple and colleagues note that "abnormal scanning patterns when viewing faces" have also been found in other conditions associated with difficulties in face perception, including autism, social phobias, and schizophrenia. The authors discuss the possible mechanisms of the

abnormal scanning patterns in AMD, involving the complex interplay between the eyes and brain in governing eye movement and interpreting visual information.

A previous study suggested that drawing attention to specific characteristics—such as the internal facial features—may increase fixations on internal features and improve face perception. Dr Seiple and coauthors conclude, "That report gives hope that eye movement control training and training of allocation of attention could improve [face perception](#) and eye scanning behavior in individuals with AMD."

Provided by Wolters Kluwer Health

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