Medical Xpress

New, easy test for age-related macular degeneration

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(Medical Xpress)—Scientists from Australia's Vision Centre have demonstrated a quick, accurate test under lights for one of the world's leading causes of blindness.

A new study shows that age-related macular degeneration (AMD) can be just as effectively and more rapidly and inexpensively diagnosed under bright lights, instead of requiring patients to sit for 20 minutes in a darkened room.

"AMD accounts for half of the legal blindness cases in Australia," says Professor Ted Maddess from The Vision Centre and The Australian National University. "It affects one in seven people over the age of 50, costing the nation $2.6 billion a year. Globally, it affects 25 to 30 million people, with an annual cost of $343 billion.

"While current tests for AMD are done in the light, scientists have proposed that it might be better if the patient has their vision adapted to the dark prior to the test," he says.

"This is because they had found that rod receptors – vision cells that we use to see in black and white and in low light – die earlier in AMD than the cone receptors we use to see in colour during the day. So it had been suggested that AMD tests would be more accurate if they were based on the health of a person's rods."

However, recent research has shown that the eye's cones, while dying

later than rods, start to deteriorate at the same time as the 'night' vision cells.

"We wanted to find out if the cones become just as sick as the rods, and if yes, would it make a difference if we test for AMD under bright lights? So we examined people's vision at light levels suitable for rods or cones," says Prof. Maddess.

Using the TrueField Analyzer, a device developed by Prof. Maddess' team and the Australian company Seeing Machines, the researchers tested how pupils respond to images on LCD screens. Multiple stimuli were provided to each eye, at 24 locations in the person's visual field. Two video cameras using infrared lighting recorded the instantaneous response of the pupils, which was then processed by a computer.

"The response of the pupils is a good indicator of how well the eyes are working – healthy eyes, being more sensitive to stimuli, will produce larger pupil contractions than damaged eyes," Prof. Maddess says.

"We found little to no difference in the results – with the TrueField Analyzer, we could diagnose AMD just as well regardless of how much light the eyes were exposed to during the test.

"This means that the cones of an AMD patient are about as damaged as the rods, so tests that are based on a person's cone vision are just as accurate."

"To 'switch off' your cones and activate your rods, a process known as 'dark adaptation', you'd have to be in a dark environment for at least 20 minutes, as in our dark tests. This means a long test to find out if you have AMD," Prof. Maddess says.

"Our research indicates that it's not necessary for people to be dark-

adapted, which eliminates any long waiting periods and the need for dark rooms. So it is an easier test than was previously thought."

More information: "Photopic and scotopic multifocal pupillographic responses in age-related macular degeneration" by Y. Rosli, S.M. Bedford, A.C. James and T. Maddess has been published in the latest issue of *Vision Research*. The paper is available at bit.ly/SvCI1Q.

Provided by The Vision Centre

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