# Do patients with age-related macular degeneration have trouble with touch screens?

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Older adults with central vision loss caused by age-related macular degeneration (AMD) have no problem with accuracy in performing touch screen tasks, according to a study in the October issue of *Optometry and Vision Science*, official journal of the American Academy of Optometry.

But their performance is slower—especially during the initial "exploration" phase of touch screen tasks, according to the new research by Quentin Lenoble, PhD, of Université Lille Nord de France and colleagues. The study provides initial insights into the best ways of adapting touch screen applications for use by the millions of people affected by AMD.

## People with AMD Are Accurate, But Slower, in Using Touch Screens

Age-related macular degeneration is the leading cause of vision loss in older adults, causing serious impairment in driving, reading, and other daily tasks. "The advent of digital displays and use of computer screens has opened up many new possibilities for reading activities and travel aids for AMD sufferers," comments Anthony Adams, OD, PhD, Editor-in-Chief of *Optometry and Vision Science*.

Dr. Lenoble and colleagues designed an experiment to see how AMD

affected performance on a simple touch screen task. Twenty-four older adults with AMD were asked to explore scenes presented on a touch screen, and then to drag pictured objects to the corresponding scene—for example, matching a fish to the sea.

Their performance was compared with that of older adults without AMD, as well as young adults with normal vision. All three groups were highly accurate in matching the objects to the corresponding scene, with correct response rates of about 99 percent.

However, there were significant differences in the initial "exploration phase"—when participants were visually exploring the scenes presented on the touch screen. Average exploration time was about four seconds for AMD patients, compared to three seconds for older subjects with normal vision. For younger subjects, exploration time was significantly shorter: less than one second.

The younger participants also had shorter touch screen movement times. However, the two groups of older adults had similar movement speeds, whether or not they had AMD.

"This study shows that people with AMD are able to perform a task on a touch screen," Dr. Lenoble and coauthors write. "They were slower during the exploration phase, but accuracy was not affected." Based on this finding, the researchers suggest, "AMD impaired the perceptual but not the motor performance of the patients in this task."

The authors note some limitations of their study—including the fact that it was performed using large, desktop-sized touch screen monitors. It's unclear how AMD patients would be able to see and navigate the images presented on smaller screens, such as smartphones and global positioning systems.

But the results are an informative first step toward adapting touch screen applications for patients with AMD, and possibly with other visual impairments as well. "The advent of digital displays and use of computer screens has opened up many new possibilities for reading activities and travel aids for AMD sufferers," says Dr. Adams. "This study suggests that there can be new strategies in making touch screen scenes and materials more identifiable to the many people with low vision caused by AMD."

**More information:** "Categorization Task over a Touch Screen in Age-Related Macular Degeneration" DOI: 10.1097/OPX.0000000000000694

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