

Development of a 3-dimensional Visual Test for Early Diagnosis of Alzheimer's Disease (AD)

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Damage due to AD occurs EARLY in a brain region used to recognize moving objects. The AD-caused, visual-system deficit could be the basis for a diagnostic test to detect early AD at a time when memory deficits are still mild. We are developing such a test based on the ability of a person to recognize rotating objects displayed stereoscopically in 3-dimensions. The person being tested wears polarizing glasses that allow a computer-generated display of life- sized, 3D objects, such as a couch, shoe or truck, to be seen "hanging in space" a few feet away. The initial view of the object disguises its identity. It then rotates, slowly revealing itself. The person presses a button when he or she recognizes it. Our completed pilot study has reliably shown that people with early stage AD need the object to rotate two to three times further in order to recognize it, than do age-matched normal viewers. Our current work involves refining and developing these results into a clinical test that can be used to help in the early diagnosis of AD.