Mobile phone test can reveal vision problems in time

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Apps that test visual function at home can discover deterioration of the eye's macula lutea long before traditional vision tests. A doctoral thesis at Sahlgrenska Academy explored this issue.

Age related changes to the eye's macula lutea, so-called macular degeneration, is a common cause of severe vision loss in persons over 60. However, existing drugs that are given as injections into the eye can slow visual impairment in the so-called "wet" type.

And, as the disease is chronic, it requires continuous treatment. Decisional for treatment success, is that flare-ups with new wet changes are discovered at an early stage, before any permanent damage is done to the macular cells.

Long waiting period

However, the wait time for treatment is long and during the waiting period, the patient risks losing visual function that is irreversible.

Researchers at Sahlgrenska Academy have now developed two new vision tests for mobile telephones. The apps that were developed under the supervision of Researcher Lars Frisén, make it possible to test vision function at home and then send the test results to an eye clinic for analysis. A thesis that evaluated the vision tests showed that they would be able to replace a portion of the controls that are currently done in eye

clinics.

Better than traditional examinations

"Our studies show that the apps are better than traditional examinations done at the clinic. It opens the possibility for the apps to be able to replace many patient visits and in this way, free up healthcare resources and reduce wait times," says doctoral candidate Christina Winther.

Both tests are self administered. The first, with the product name of MultiBit, uses numbers built up of small bright dots. The numbers appear very briefly on the screen and then disappear. Then it is up to the patient to repeat those numbers out loud. Varying the number of dots, varies the level of difficulty. The answers are taped and compared to a facet, where the results can then be sent to the clinic.

Reading test

The second app, called Celego, works according to the same principle, but is a reading test that shows both letters and numbers in continuously changing new combinations and sizes.

"Being able to read better after treatment is what many patients feel is most valuable to their daily life. Currently, we are not investigating this in a controlled way, but this provides a simple and standardized way to examine the patients' reading capabilities and speed," says Christina Winther.

More information: The thesis Aspects on Function in Age-Related Macular Degeneration will be defended at a disputation on January 29. Link to the thesis: hdl.handle.net/2077/40885

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