

iPad game effective in treating common eye condition in children

10 November 2016

A special type of iPad game was effective in treating children with amblyopia (lazy eye) and was more effective than the standard treatment of patching, according to a study published online by *JAMA Ophthalmology*.

Amblyopia is the leading cause of monocular visual impairment in [children](#), affecting 3 percent in the United States. Amblyopia has traditionally been viewed as a monocular disorder that can be treated by patching the fellow (opposite) eye to force use of the amblyopic eye, but it does not always restore 20/20 vision or teach the eyes to work together. Because [amblyopia](#) arises from binocular discordance, binocular treatments are likely to yield better vision outcomes. However, it is unclear whether binocular treatment is comparable to patching in treating amblyopia.

Krista R. Kelly, Ph.D., of the Retina Foundation of the Southwest, Dallas, and colleagues randomly assigned 28 children (average age, 7 years) with amblyopia to binocular [game](#) treatment (n = 14) and to patching treatment (n = 14). The action-oriented adventure iPad game required children to wear special glasses that separate game elements seen by each eye so that reduced-contrast elements are seen by the fellow eye, high-contrast elements are seen by the amblyopic eye, and high-contrast background elements are seen by both eyes. For successful game play, both eyes must see their respective game components. Children were asked to play the game at home for 1 hour a day, 5 days a week for 2 weeks (10 hours total). The primary outcome was change in amblyopic eye best-corrected visual acuity (BCVA) at the 2-week visit.

The researchers found that at the 2-week visit, improvement in amblyopic eye BCVA was greater with the binocular game compared with patching, with the average visual acuity improvement after binocular treatment being more than double the improvement found with patching, and this was

achieved with less than 50 percent treatment time required for patching (10 vs 28 hours assigned treatment). Five of 13 children (39 percent) with binocular treatment reached 20/32 or better visual acuity compared with 1 of 14 children (7 percent) with patching.

At 2 weeks, patching children crossed over to binocular game treatment, and all 28 children played the game for another 2 weeks. At the 4-week visit, no group difference was found in BCVA change, with children who crossed over to the binocular games catching up with children treated with binocular games.

"We show that in just 2 weeks, [visual acuity](#) gain with binocular treatment was half that found with 6 months of patching, suggesting that binocular treatment may yield faster gains than patching. Whether long-term binocular treatment is as effective in remediating amblyopia as patching remains to be investigated," the authors write.

More information: *JAMA Ophthalmol.* Published online November 10, 2016. [DOI: 10.1001/jamaophthalmol.2016.4224](#)

Provided by The JAMA Network Journals

APA citation: iPad game effective in treating common eye condition in children (2016, November 10) retrieved 31 August 2022 from <https://medicalxpress.com/news/2016-11-ipad-game-effective-common-eye.html>

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