

In mice and men: Laser treatment reverses effects of early age-related macular degeneration

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A new technique reported in the February 2015 issue of *The FASEB Journal* suggests that during early stages, it might be possible to reverse age-related macular degeneration, a leading cause of blindness that is currently irreversible. The treatment involving a nanosecond laser may also have further implications for other eye diseases such as diabetic macular oedema, diabetic retinopathy and retinopathy of prematurity.

"It is hoped that this study will provide a basis for the clinical use of the [low energy](#) nanosecond laser in those with early stage [age-related macular degeneration](#) and that such a treatment will limit the progression of the disease to the advanced, sight-threatening forms," said Erica L. Fletcher, O.D., Ph.D., FAAO, a researcher involved in the work from the Department of Anatomy and Neuroscience at the University of Melbourne in Victoria, Australia.

To make their discovery, Fletcher and colleagues treated a group of individuals with intermediate AMD in one [eye](#) with a single session of nanosecond laser treatment. These individuals underwent eye examinations every six months, out to two years post-treatment and the results were compared to an untreated group with early AMD. Anatomical examination of human and mouse eyes was used to determine the effect of the laser on the sensitive light-detecting retina. In order to determine how this laser may help in limiting AMD, a mouse with a genetic mutation that predisposes it to developing one of the hallmark signs of AMD, was treated with the nanosecond laser and structural and gene analysis was performed. Results showed that treating those with early AMD with this new low energy nanosecond laser may limit disease progression. Importantly, unlike other lasers currently used to treat eye disease, the nanosecond laser does not result in damage to the

sensitive retina. This study also showed evidence that nanosecond laser treatment in one eye can also produce positive effects in the other untreated eye. This raises the possibility that monocular treatment may be sufficient to treat disease in both eyes.

"This truly remarkable research is worth watching," said Gerald Weissmann, M.D., Editor-in-Chief of *The FASEB Journal*, "because it may help usher in an era in which age-related [macular degeneration](#) is either eliminated or no longer considered a serious disease."

More information: A. I. Jobling, R. H. Guymer, K. A. Vessey, U. Greferath, S. A. Mills, K. H. Brassington, C. D. Luu, K. Z. Aung, L. Trogrlic, M. Plunkett, and E. L. Fletcher. Nanosecond laser therapy reverses pathologic and molecular changes in age-related macular degeneration without retinal damage. *FASEB J.* February 2015 29:696-710; [DOI: 10.1096/fj.14-262444](https://doi.org/10.1096/fj.14-262444)

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