

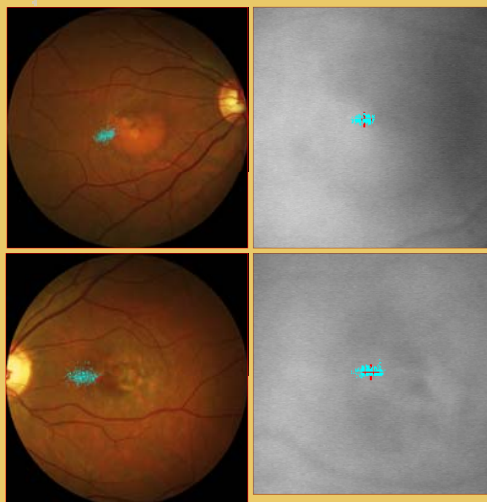
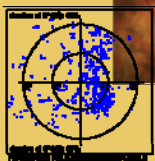
Pattern Stimulated Visual Training With Mp-1 Microperimeter in Evoluted AMD Patient

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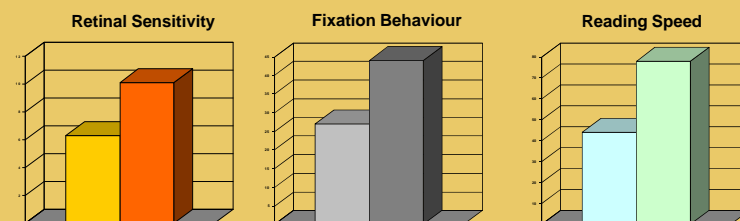
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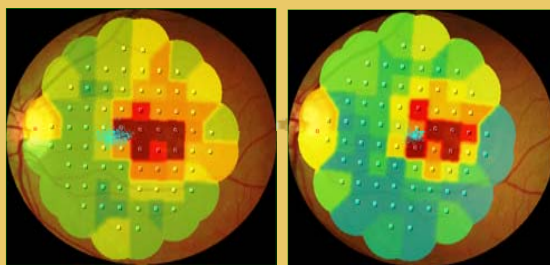
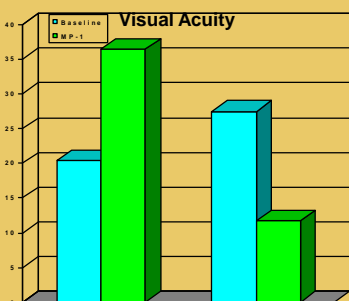
Purpose: to analyze the efficacy of biofeedback training with pattern stimulation by means of MP-1 microperimeter (Nidek Technologies) on patients with Age Related Macular Degeneration (AMD).



Results: All patients displayed an improvement in visual acuity ($p=0.048$), fixation behaviour ($p=0.0012$), retinal sensitivity ($p=0.027$) and reading speed ($p=0.033$). Mean character size value for near vision dramatically improved from 36.4 to 11.7; this result was statistically significant ($p=0.031$).



Conclusions: A biofeedback pattern stimulation obtained using the MP-1 microperimeter can help the brain to exercise and stabilize a new preferred retinal locus (PRL) increasing attention modulation, providing, in patients with macular disease and central scotoma, a more efficient PRL for visual tasks. Patterned stimulation has highly significant recognition shapes that increase inner retina integration processes and optimize stimulus processing and recognition and brain transmission. Our group of AMD patients presented increased fixation stability demonstrating, according to ours and others authors studies, that even in final stages of wet AMD there is a residual cerebral plasticity that can be used to partially restore sight.



Methods: We enrolled 15 patients (7 female and 8 male) mean age 72.21 ± 8.37 and examined total of 25 eyes with terminal wet AMD. All the patient underwent a complete eye examination which comprised BCVA (evaluated by metrovision system), reading speed test, fixation stability and retinal sensitivity, 10 training sessions of 10 minutes each eye performed once a week using the MP-1 biofeedback pattern stimulation (8 arcmin square). Statistical analysis was performed using Student's t-test, p values less than 0.05 were considered statistically significant.

This result may be obtained overriding damaged photoreceptors improving integrative processes in outer and mainly in inner retina. Pattern stimulation was targeted on receptive fields highly sensitive to mean spatial frequencies because such stimulus provides an higher informative content for ganglion cells than light alone as is used in IBIS stimulation (Contestabile et al 2003). Moreover MP-1 microperimetry assures high level of accuracy in fixation control by the mean of a more efficient eye-tracker system than steady state VEP (Vingolo et al 2008). Finally our results demonstrate that, after the anti-VEGF therapy, low vision patients still have a good chance to improve their quality of life with biofeedback and or light stimulation.