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by Uday Devgan, MD

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Neuro-Sciences

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OSN SuperSite Breaking News 2/20/2008

Addressing the brain vs. the eye key to improving visual function

BARCELONA — The key to improving visual function is focusing on patients' brains, rather than their eyes, because visual defects can be improved using specific exercises that exploit the nervous system's ability to adapt and acquire new skills, according to a specialist speaking here.

At the European Society of Cataract and Refractive Surgeons Winter Refractive Surgery Meeting, Michael Belkin, MD, said, "This ability, which we call neural plasticity, has been shown in adults who have recovered from amblyopia after prolonged patching or have spontaneously gained visual lines in one eye when the fellow eye had degraded vision from [age-related macular degeneration], cataract or trauma."

The NeuroVision treatment (NeuroVision Inc.) is based on the repetitive performance of specific visual tasks to stimulate and promote special interaction between specific neurons.

"Enhanced spatial interactions reduce noise levels in neuronal activity and increase signal strength and therefore improve neuronal efficiency inducing improvement of contrast sensitivity function, which induces improvement in visual acuity," Dr. Belkin said.

The NeuroVision treatment program consists of a series of preliminary vision tests followed by computerized analysis of neural inefficiencies. The exercises address specific neural inefficiencies through a series of individualized 30-minute sessions that progressively adjust to individual patient progress.

"A full course normally requires three sessions per week, for a total of approximately 30 sessions. The treatment ends when the patient's vision does not further improve," Dr. Belkin said.

The NeuroVision treatment has been used in clinical trials for conditions such as amblyopia, post-refractive surgery rehabilitation, myopia and presbyopia.

"An increase of 2 D to 2.5 D was achieved in all conditions. Contrast sensitivity at all frequencies improved by 100% or more," Dr. Belkin said. "At 1 year, at least 85% of the improvement is retained."

European Society of Cataract and Refractive Surgeons Winter Meeting 2008

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