American College of Neuropsychopharmacology

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Training Exercises for the Brain may Reverse Age-related Cognitive Decline

HOLLYWOOD, FL (December 6, 2012) – A new study shows that computer-based training exercises for the brain may help reverse ageing-related cognitive decline. The study was presented today at the American College of Neuropsychopharmacology (ACNP) Annual Meeting.

The study was led by Etienne de Villers-Sidani, MD, Assistant Professor at Montreal Neurological Institute, McGill University. It found that elderly rats and human subjects had more difficulty than their younger counterparts in discriminating sounds that deviated slightly from background noise. This age-related deficit in discriminating so-called "oddball" sounds was shown to result from misfiring of cells in a part of the brain involved in cognition. The findings suggest that such hearing deficits may reflect age-related cognitive decline.

"In humans, auditory processing deficits most frequently translate into trouble understanding speech in noisy environments, but can also result in deficits in vision and touch", said Villers-Sidani. "Such deficits are a hallmark of the brain aging and play an important role in ageing and dementia-related cognitive impairments."

Importantly, the age-related hearing deficits were reversed by intensively training elderly rats or humans on a computer-based program to help them discriminate different sounds. This suggests that non-invasive computer-based training procedures could be used to help treat age-related cognitive decline.

According to Villers-Sidani, "intensive perceptual training substantially improved performance, suggesting that a significant portion of age-related brain impairments might be reversed by such computer-based perceptual training protocols".

The findings also have important implications for the treatment of individuals suffering from other mental illness also associated with similar cognitive deficits.

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