

NIH Grant Awarded to Further Research of Novel Chemical Pathway to Reverse MCI

Levels of acetylcholine drop as we age—previously, nothing has been shown to reverse that

SAN FRANCISCO, Oct. 21, 2025 (GLOBE NEWSWIRE) – The NIH has awarded a new grant to [Posit Science](#), the maker of the online [BrainHQ](#) brain exercises, to advance research, which showed in a neuro-imaging study published last week, that their brain exercises can significantly upregulate the production of a key brain chemical (acetylcholine) – known to downregulate with normal cognitive aging and to decline more severely with pre-dementia and dementia. The new grant will help fund a study among people with the pre-dementia condition mild cognitive impairment (MCI) to see if their acetylcholine will be upregulated and their cognitive performance will improve.

MCI is a medical designation for cognitive impairment that exceeds normal age-related loss but does not yet meet the criteria for a dementia diagnosis. The [Alzheimer's Association](#) estimates that 12% to 18% of people over age 60 have MCI, and that 10 to 15% of people living with MCI develop dementia each year. The percentage converting to dementia increases with age, but most do not progress to a dementia diagnosis. There is no generally accepted successful treatment for MCI, though some interventions have shown positive results in studies.

The most prescribed medications for Alzheimer's disease are cholinesterase inhibitors (such as Aricept®), which artificially flood the brain with acetylcholine to provide transient benefit, but do not fix its downregulated production.

"We are honored and excited to receive this NIH research grant," said Dr. Henry Mahncke, CEO of Posit Science. "This grant – and the reactions from brain chemistry experts – underscore how pivotal the results are that were reported last week by our colleagues at McGill University, who ran the INHANCE Study. I suspect we'll look back at the INHANCE Study as a turning point in the science of addressing cognitive aging, pre-dementia, and dementia."

The [INHANCE neuroimaging study](#) randomized 92 older adults into either (a) an intervention group, which trained on BrainHQ online brain exercises for 30 minutes a day for 10 weeks, or (b) an active control group which spent an equal amount of time on attentionally demanding casual online games. The research team at McGill found that the intervention group showed a significant upregulation in the production of the brain chemical acetylcholine by the brain's cholinergic system, as compared to the control which showed no upregulation. The upregulation persisted at the 3-month follow-up.

"The training restored cholinergic health to levels typically seen in someone 10 years younger," said lead investigator Dr. Etienne de Villers-Sidani, an Associate Professor in McGill's Department of Neurology and Neurosurgery and neurologist at The Neuro (Montreal Neurological Institute-Hospital). "This is the first time any intervention, drug or non-drug, has been shown to do that in humans."

The INHANCE study offers a biochemical explanation of prior findings showing these exercises boosted cognition and reduced [dementia risk](#) and [incidence](#) in older largely healthy adults, as well as many positive results [across 29 trials of BrainHQ in MCI](#) and other predementias. The McGill researchers noted this intervention could offer a lower-risk alternative to medication or be used alongside it.

“Our preliminary analysis suggests that the more impaired people in the INHANCE Study had greater gains,” observed Dr. Mahncke. “That created a compelling next step – showing whether we can upregulate acetylcholine in people with MCI – to complete the picture of how we might reverse that condition.”

BrainHQ exercises have shown benefits in [more than 300 studies](#). Such benefits include gains in cognition (attention, speed, memory, decision-making), in quality of life (depressive symptoms, confidence and control, health-related quality of life) and in real world activities (health outcomes, balance, driving, workplace activities). BrainHQ is used by leading health and Medicare Advantage plans, by leading medical centers, clinics, and communities, and by elite athletes, the military, and other organizations focused on peak performance. Consumers can try a BrainHQ exercise for free daily at <https://www.brainhq.com>.

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