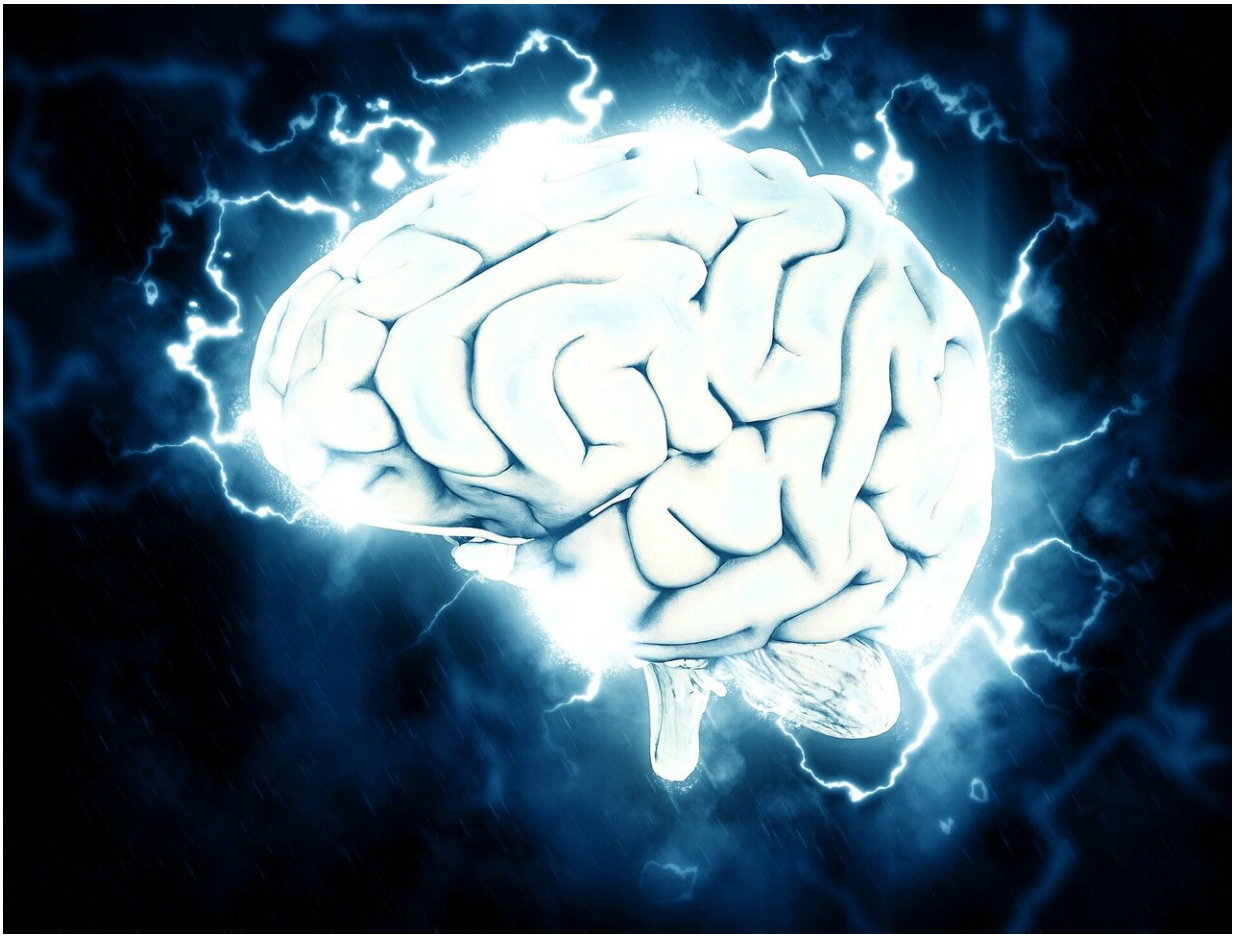
'Superagers' over 80 have the memory and brain connectivity of twenty-somethings

September 9 2019, by Terri Janos



Credit: CC0 Public Domain

Research published in the journal *Cerebral Cortex* has shown that

stronger functional connectivity—that is, communication among neurons in various networks of the brain—is linked to youthful memory in older adults. Those with superior memories—called superagers—have the strongest connectivity.

The work is the second in a series of three studies undertaken to unlock the secret of something researchers already knew: that some adults in their 80s and 90s function cognitively as well as or better than much younger people.

The first study showed that when compared with typical older adults, the brains of superagers are larger in certain areas that are important for processes that contribute to memory, including learning, storing, and retrieving information. But brain regions are not isolated islands; they form networks that "talk" to one another to allow for complex behaviors.

"This communication between brain regions is disrupted during normal aging," said Alexandra Touroutoglou, Ph.D., an investigator in the MGH Department of Neurologyand the Athinoula A. Martinos Center for Biomedical Imaging. "Superagers show not just youthful brain structure, but youthful connectivity as well."

The current study looked at superagers, typical adults from 60 to 80 years old, and young adults 18 to 35. It used functional magnetic resonance imaging (fMRI) to examine the synchronization of brain waves in the default mode network (DMN) and salience network (SN) of participants in a resting state.

"These networks ebb and flow, or oscillate, whether you're in a resting state or engaged in a task," said Bradford C. Dickerson, MD, director of MGH'sFrontotemporal Disorders Unit. "Our prediction was that typical older adults would have less synchronization in these brain waves—less efficient networks—but that superagers would have networks as

efficient as the young adults. And that's what we found."

The research team's next study will analyze fMRI data from brains engaged in memory and other cognitive tasks. It is hoped that taken together, the studies will "provide basics for future researchers to develop biomarkers of successful aging," said Touroutoglou, who is also an instructor in neurology at Harvard Medical School, noting that one of the mysteries scientists hope to tease out is whether superagers start off with "bigger and better" brain structure and communication than other people or if they are somehow more resilient to the declines of normal aging. Future research may then measure the effects of genetics as well as exercise, diet, social connectedness, and other lifestyle factors that have been shown to affect resilience in older adults.

"We hope to identify things we can prescribe for people that would help them be more like a superager," said Dickerson, who is also an associate professor of neurology at Harvard Medical School. "It's not as likely to be a pill as more likely to be recommendations for lifestyle, diet, and exercise. That's one of the long-term goals of this study—to try to help people become superagers if they want to."

Provided by Massachusetts General Hospital

Citation: 'Superagers' over 80 have the memory and brain connectivity of twenty-somethings (2019, September 9) retrieved 27 January 2024 from https://medicalxpress.com/news/2019-09-superagers-memory-brain-twenty-somethings.html