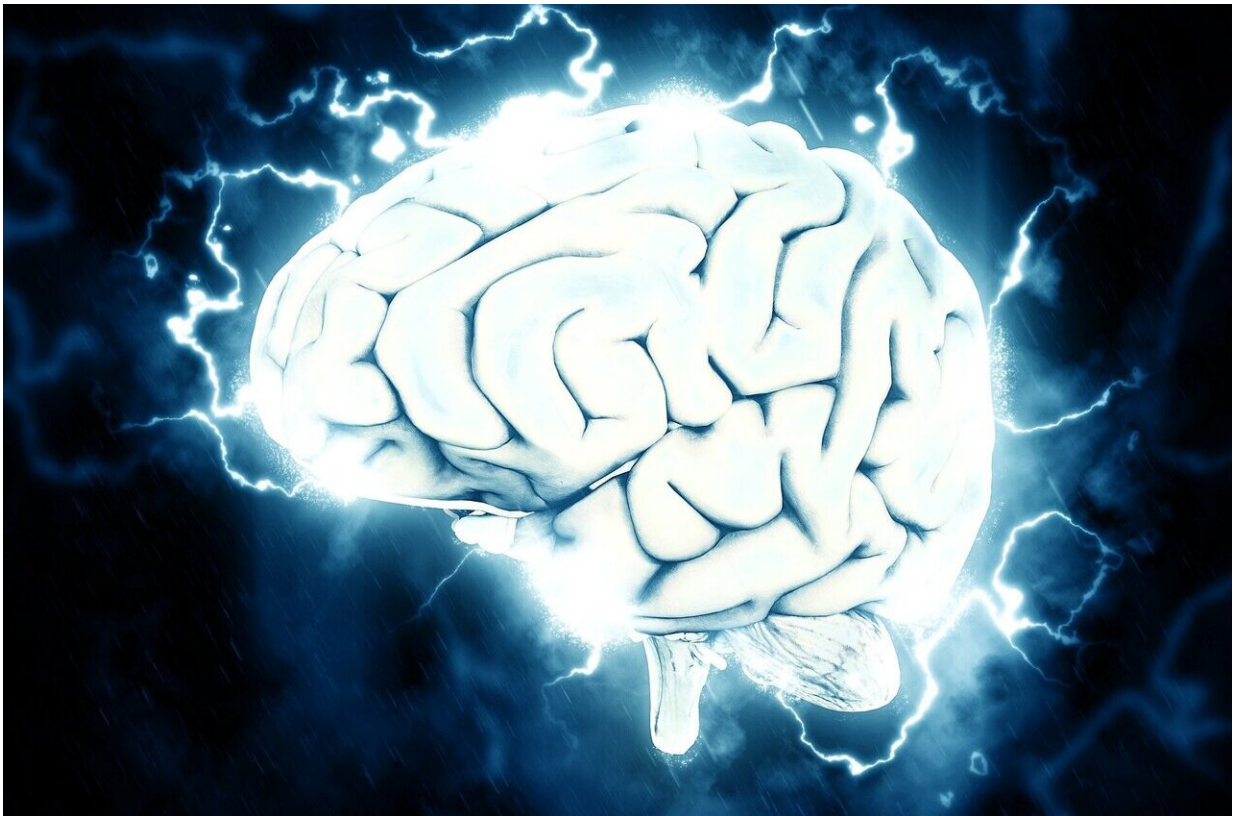


People aged 95 and over show stronger brain connectivity

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World-first research led by neuroimaging expert Dr. Jiyang Jiang at UNSW's Centre for Healthy Brain Ageing (CHeBA) has found that those aged 95 and over demonstrated more activation between the left

and ride side of their brain than their younger counterparts.

Given the prevalence of dementia increases with age, near-centenarians and centenarians without dementia are generally considered as models of successful aging and resistance against [age-related cognitive decline](#).

"We wanted to see if there was something particularly special about the [brain](#)'s functional connectivity of those aged 95 and older that helps them preserve brain function into the 11th decade of their life," says Dr. Jiang.

The research, published in *NeuroImage*, investigated brain functional characteristics in the extreme age range using resting-state functional MRI to depict characteristics of neural activity in near-centenarians and centenarians. It expands upon previous research from this group that identified the brain structural profile of near-centenarians and centenarians using data from CHeBA's Sydney Centenarian Study.

Associate Professor Wei Wen, Leader of CHeBA's Neuroimaging Group said that functional characteristics of the extremely old brains had not previously been documented.

According to Associate Professor Wen, resting-state functional MRI offers an unprecedented opportunity to study human [brain function](#) and neural activity in this special group of elders.

The research compared 57 older individuals aged 95-103 years of age with 66 cognitively unimpaired younger participants aged 76-79.

"Findings suggested that, compared to young-old controls, centenarians showed more synchronized activation of left and right fronto-parietal control networks," said Dr. Jiang.

"In near-centenarians and centenarians, this coupled activation of bilateral fronto-parietal control networks contributed to better performance on visuospatial cognitive tasks," he said.

Professor Perminder Sachdev, Co-Leader of CHeBA's Sydney Centenarian Study, says this paper is a fine example of how the study of [centenarians](#) can reveal the secrets of healthy aging, and how the brain adapts to age-related changes and continues to perform so well in these exceptional individuals.

"The participants in the Sydney Centenarian Study are great models for us to explore the secrets of successful aging," says Professor Sachdev.

The findings emphasized the important role of the brain's fronto-parietal control network in relation to the adaptability of a person's cognitive abilities to aging or disease, known as cognitive reserve.

Future studies can then investigate the underlying mechanisms for this cognitive reserve and develop potential therapeutic strategies against age-related decline.

More information: Jiyang Jiang et al. Stronger bilateral functional connectivity of the frontoparietal control network in near-centenarians and centenarians without dementia, *NeuroImage* (2020). [DOI: 10.1016/j.neuroimage.2020.116855](#)

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