

Extra calligraphy hailed for cutting dementia risk

HEALTH

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Elderly people who spend more time practising Chinese calligraphy have a reduced risk of dementia, according to a Hong Kong study which found doubling participants' activity time can positively affect their brain networks and working memory.

Chinese University (CUHK) yesterday shared its findings from a survey conducted between 2020 and 2022 that interviewed 112 people aged 55 to 75 who regularly practised calligraphy for at least one hour each week.

Half of the participants were placed in an intervention group and told to double their activity time for six months, with researchers finding the group's working memory was better than those who spent less time doing calligraphy. Brain scans also showed functional connectivities had also increased among the more invested practitioners' brain networks that oversaw memory, attention, self-reflection and envisioning the future.

Associate Professor Allen Lee Ting-chun of CUHK's psychiatry department said the study was the first "randomised controlled trial" to explore the relationship between Chinese calligraphy and dementia.

"The clinical significance is ... we strongly recommend the community-living older adults to engage in more cognitive activities because based on our randomised controlled trial, it's helpful to their working memory and can strengthen their functional brain network," he said.

Working memory is a person's capacity for retaining and processing information quickly, such as keeping someone else's phone number in mind as they dial it.

"Our findings also address the common misunderstanding that if you are old, there is nothing you can do," Lee added. He said the study also suggested even elderly long-term practitioners could still experience positive "neuromodulatory effects" if they spent more time doing calligraphy.

A neuromodulatory effect refers to the ability to change the activities of neurons.

The study's findings were published in The Lancet's international peer-reviewed journal eBioMedicine in March.

According to the university's Hong Kong Mental Morbidity Survey for Older People, 10 per cent of elderly residents aged 70 and above suffer from dementia.

The study also found 20 per cent of those aged 60 to 74 and a third of those aged 75 and above had mild cognitive impairments.

Professor Linda Lam Chiu-wa, also of CUHK's psychiatry department, said while other studies suggested a connection between daily intellectual activities and a reduced risk of dementia, academics had yet to determine whether the trend was causal.

Such studies had also yet to take a deeper look at whether people benefited from increased participation in activities, as well as the effects on cognition and discovering the underlying biological mechanisms, she added.

Lee, meanwhile, pointed to a study from several years ago that showed the risk of dementia was lower among elderly who regularly played mahjong for six years

compared with those who abstained. But the study was unable to provide a causal relationship between the two data points, he added.

Professor Winnie Chu Chiu-wing, of the university's department of imaging and interventional radiology, said participants had undergone magnetic resonance imaging scans of their brain before and after the study.

Chu said the scans were taken to help detect changes in the functional connectivities of the brain's default mode network (DMN).

The default mode network was active during wakeful rest and intrinsic activities such as daydreaming, reminiscing and envisioning the future. It oversaw attention span, memory and self-reflection, she explained.

Chu said the scans indicated functional connectivity between all areas of the networks of intervention group members had increased, while it had dropped among the other participants.

Global cognition of all participants remained at the same level after six months, while the working memory of the intervention

group had improved, and the level for the rest of the respondents had dropped.

Chu said the results showed increased calligraphy practice could induce a positive neuromodulatory effect that reorganised and strengthened the DMN.

"We believe that calligraphy involves recalling words, relating to knowledge of the characters, reflecting on prior experiences and envisioning the end result. These internally focused tasks can activate the DMN," Chu said.

"It also involves externally focused tasks such as writing and observing and correcting errors, which deactivate the DMN."

Participant Caroline Keung Chiu Yuk-lin, a 73-year-old retiree, increased her calligraphy time from about one hour each week to up to five hours. She said she had completed more than 170 works over the study period before continuing the increased activity time for another 43 weeks, adding while she had not noticed any obvious changes, her daughter always praised her "clear mind".

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