

# Spring-cleaning the mind? Study shows a cluttered brain doesn't remember

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Lapses in memory occur more frequently with age, yet the reasons for this increasing forgetfulness have not always been clear. According to new research from Concordia University, older individuals have reduced learning and memory because their minds tend to be cluttered with irrelevant information when performing tasks. Published in *The Quarterly Journal of Experimental Psychology*, these findings offer new insights into why ageing is associated with a decline in memory and may lead to practical solutions.

"The first step of our study was to test the working memory of a younger and older population and compare the results," says Mervin Blair, first author and a PhD student in Concordia's Department of Psychology and a member at the Centre for Research in Human Development. "In our study, working memory refers to the ability of both retaining and processing information."

Some 60 participants took part in the study: half were an average of 23 years old, while the other half was about 67 years old. Each participant was asked to perform a working [memory task](#), which included recalling and processing different pieces of information.

"Overall, we showed that our older participants had reduced working memory compared to our younger participants," says Blair. "Younger adults were better than the older adults at recalling and processing information."

"Our study was novel because we looked at how the ability to recall and process information at the same time changes as people get older," adds Karen Li, senior author and a professor in Concordia's Department of Psychology and a member of the Centre for Research in Human Development.

## Older people don't purge irrelevant info

The next step was to determine if there was a timeframe when the ability to delete irrelevant information, known as inhibition deletion, changed. This was measured using a sequential memory task . Images were displayed in a random order and participants were required to respond to each image in a pre-learned manner. Once again, the youngsters outperformed their older counterparts. "The older adults had poor inhibition, repeatedly responding to previously relevant images," says Blair.

Analyses were conducted to determine the relationship between the ability to clear irrelevant information and working memory ability. "Poor inhibition predicted a decline in the recall component of working memory and it also predicted decline in the processing component of [working memory](#)," says Blair. "Basically, [older adults](#) are less able to keep irrelevant information out of their consciousness, which then impacts on other mental abilities."

For those who are having trouble remembering, Blair suggests that focusing and reducing mental clutter may help. "Reduce clutter, if you don't, you may not get anything done."

Keeping a mind clutter-free can be more difficult as people age, especially during periods of stress when people focus on stressors, yet Blair says relaxation exercises can help de-clutter the brain. What's more, the brain continues to function optimally into old age when it is

mentally stimulated by learning a new language, playing an instrument, completing crossword puzzles, keeping an active social life and exercising.

**More information:** [www.tandf.co.uk/journals/pp/02724995.html](http://www.tandf.co.uk/journals/pp/02724995.html)

Provided by Concordia University

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