

Older brains make good use of 'useless' information

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A new study has found promising evidence that the older brain's weakened ability to filter out irrelevant information may actually give aging adults a memory advantage over their younger counterparts.

A long line of research has already shown that aging is associated with a decreased ability to tune out irrelevant information. Now scientists at Baycrest's world-renowned Rotman Research Institute have demonstrated that when older adults "hyper-encode" extraneous information - and they typically do this without even knowing they're doing it - they have the unique ability to "hyper-bind" the information; essentially tie it to other information that is appearing at the same time.

The study, which appears online this week in the journal [Psychological Science](#), was led by Karen Campbell, a PhD student in [psychology](#) at the University of Toronto, with supervision from Rotman senior scientist Dr. Lynn Hasher, a leading authority in attention and inhibitory functioning in younger and older adults.

"We found that older brains are not only less likely to suppress irrelevant information than younger brains, but they can link the relevant and irrelevant pieces of information together and implicitly transfer this knowledge to subsequent memory tasks," said Campbell.

In the study, 24 younger adults (17 - 29 years) and 24 older adults (60 - 73 years) participated in two computer-based memory tasks that were separated by a 10-minute break. In the first task, they were shown a

series of pictures that were overlapped by irrelevant words (e.g. picture of a bird and the word "jump"). They were told to ignore the words and concentrate on the pictures only. Every time they saw the same picture twice in a row, they were to press the space bar. After completing this task and following a 10-minute break, they were tested on a "paired memory task" which essentially challenged them to recall how the pictures and words were paired together from the first task. They were shown three kinds of paired pictures - preserved pairs (pictures with overlap words that they saw in the first task), disrupted pairs (pictures they saw in the first task but with different overlap words) and new pairs (new pictures and new words they hadn't seen before).

The older adults showed a 30% advantage over younger adults in their memory for the preserved pairs (the irrelevant words that went with the pictures in the first task) relative to the new pairs.

"This could be a silver lining to aging and distraction," said Dr. Hasher, senior scientist on the study. "Older adults with reduced attentional regulation seem to display greater knowledge of seemingly extraneous co-occurrences in the environment than younger adults. As this type of knowledge is thought to play a critical role in real world decision-making, [older adults](#) may be the wiser decision-makers compared to younger adults because they have picked up so much more information."

Provided by Baycrest Centre for Geriatric Care

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