Memory training needs to target specific difficulties to be effective, suggests study

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Credit: Baycrest Centre for Geriatric Care

When people hear that their memory will worsen as they age, the question on their minds becomes: what can we do to remember better?

A recently published Baycrest study suggests that training programs can help, but only if they are tailored towards an individual's specific

memory difficulty, such as trouble remembering faces, voices or recent events.

"One approach to memory intervention is to try and train underlying memory processes so individuals will see improvements in situations that require this mechanism," says Dr. Nicole Anderson, lead author on the study, senior scientist at Baycrest's Rotman Research Institute and associate professor of psychiatry and psychology at the University of Toronto. "Our study focused on training one memory process, recollection, which typically deteriorates during aging. This process is what allows us to mentally time travel and re-experience past events in our mind with great detail."

The study, published in the journal *Psychology and Aging*, trained recollection among older adults between the ages of 64 to 87. Researchers examined a method that has effectively boosted this process among healthy older adults and people with mild cognitive impairment and Alzheimer's disease.

To their surprise, the study uncovered good and bad news. The good news was that researchers were able to demonstrate that training led to massive improvements in recollection. By the end of the program, the ability of older adults matched those of individuals in their 20s. These benefits were also shown to last when participants were retested three months later. The bad news was older adults did not improve on any of the tasks that should have benefitted from having better recollection, such as a memory test for remembering whether words were shown on a screen or heard through headphones. Participants also didn't report any improvements to their memory.

"These results reset what researchers understand about this memory process," says Dr. Anderson. "For a long time, memory researchers viewed recollection as a single mechanism, but our work suggests that

this is not the case. Instead, it implies there may be many different types of recollection for different contexts connected to a memory, such as feelings felt at the time, the sounds in the area or what a person sees at the time."

These findings raise interesting questions about how memory is organized and it identifies a need for better understanding of recollection, before training programs are created, adds Dr. Anderson. As next steps, Dr. Anderson and her team will explore how aging affects a person's recollection for different things and identify whether certain aspects of this memory process are more susceptible to dementia risk.

More information: Nicole D. Anderson et al, Repetition lag training eliminates age-related recollection deficits (and gains are maintained after three months) but does not transfer: Implications for the fractionation of recollection., *Psychology and Aging* (2018). DOI: 10.1037/pag0000214

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