

## **Memory Change in Old Age**

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Scientists who study aging usually define older adulthood as beginning at around age 65. Older adults show many differences in memory functioning compared to young adults, and these differences get progressively larger throughout older adulthood. Although many older adults are afraid of developing Alzheimer's disease, the vast majority will not; only 7% of people age 90 or older develop this disease. With normal aging, memory systems show a complex pattern of changes: many types of memory decline, but a few show stability and even improvements.

The short-term memory system that holds and manipulates information for 30 seconds or less is called working memory. This system is important for understanding conversations and written text, and for performing many everyday activities such as cooking a meal. Unfortunately, working memory capacity—the amount of things a person can hold in mind—shows significant losses in older adulthood. In fact, capacity starts to decrease in the twenties.

All memories that are stored for longer than 30 seconds become part of the long-term memory system. One long-term memory task that shows major weaknesses with aging is remembering something that happened at a specific time and place, for example remembering where you parked your car. These memories are called episodic memories. When older adults

complain about memory problems, they are often referring to forgetting in episodic memory. For example, older adults might have trouble remembering whether they took a heart medication or where they left their glasses. Although declines in episodic memory are common, older adults are more likely to have difficulty *recalling* information (bringing certain information to mind) than *recognizing* information (knowing they have encountered that information before). In fact, older adults tend to do just as well as young adults on recognition tasks.

Another form of memory that typically shows declines in older adulthood is prospective memory, or remembering to do things in the future (e.g., remembering to turn off the stove). However, for certain prospective memory tasks, older adults can perform as well as young adults. For example, although older adults commonly do worse than young adults on artificial tasks done in a laboratory, their performance is on par with young adults for tasks done in their own homes. For these tasks, older adults seem to benefit from higher motivation and a less busy lifestyle.

There is also good news about memory and aging: some memory systems show stability and even gains. Any task that relies on well-learned, more automatic processing will be easy for an older adult to perform. For example, a seventy-year-old woman who drives to church every Sunday will have no trouble remembering this familiar route (although she might have trouble remembering the directions to a cinema she recently discovered). Memory for words (lexical memory) and memory for facts and knowledge about the world (semantic memory) also remain strong and even increase in older adults. Interestingly, older adults also show preserved memory skills when remembering emotional information or events (e.g., the Columbia space shuttle explosion). This advantage may stem from a difference in personal goals: older adults have more goals focused on emotions while young adults favor goals for increasing knowledge.

Even for types of memory that tend to decline with age, there are several things adults can do to maximize memory performance. For example, physical exercise has shown powerful effects in warding off memory loss. Additionally, a high level of education predicts better memory functioning in old age. However, studies have shown mixed support for claims about the benefits of mental exercise (e.g., doing crossword puzzles), with some studies showing benefits while others do not. Finally, older adults generally perform memory tasks better in the morning than in the evening. Therefore, especially demanding memory tasks should be planned for mornings, when cognitive functioning is usually at its peak for older adults.

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**Further reading:**

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