

Memory and Healthy Aging: An Overview and Introduction

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Supported by Goldfarb Center Collaborative Research Grant 01.2450

The purpose of the presentation is to provide an overview of different types of memory and how they change as we age.

There are many **different types of memory**: We remember information we study and are trying to learn (such as in school or for a professional test), we remember things we see in the news, emotionally salient events (such as the assassination of JFK), what we ate at a recent meal, phone numbers, personal events like birthdays and weddings, to take medications, and so on.

Researchers distinguish between **procedural memory** (“**how to**” memory: how to tie your shoes, how to ride a bike) and declarative memory (“**what**” memory: somebody’s name, a specific event or episode).



Within declarative memory, the following types are of particular interest:

1. Short-term/Working Memory

- a. **Short-term memory**: This is memory for rather small amounts of information (such as a phone number, a short grocery list) that only lasts for a brief amount of time (about 30 seconds). We hold information in short-term storage by rehearsing it (thinking about it) – if distracted we tend to forget it. The average adult can remember 5 to 9 items (an average of 7). This type of memory does not decline much as we age.
- b. **Working memory**: Similar to Short-term memory, but in addition to storing information we also are doing some more active processing of it. It’s similar in a sense to what happens in an airport control tower: One needs to remember that one plane is landing on a given runway, while continuously updating with new information. The capacity is reduced (about 4 items) and we tend to



- perform slightly worse as we age.
- c. **Attention and Memory**: Working memory, as other forms of memory, depends on attention and as we age, we start to have more difficulty maintaining and shifting attention. In general, we remember what we are

paying attention to and need to be able to focus our attention to remember well.

2. Episodic Memory

- a. This is memory for specific events – the “who, what, when, and where” of memory. It relies heavily on our ability to “bind” pieces of information together – a name and a face, a specific event with the place it occurred, and so on. This type of memory does decline as we age, possibly due to difficulties in forming strong associations among different elements of a memory or because of difficulty keeping “extra” information out of the way.



- b. **Memory for Emotional Events:** Many of us have very strong memories for emotionally salient personal (the birth of a child or grandchild, a marriage proposal, the loss of a loved one) or public (the September 11, 2001 attacks, JFK’s assassination).



These memories are called *flashbulb memories* because they are reminiscent of a snapshot in detail and vividness. However, some research suggests they are not necessarily any more

accurate than other memories. Older adults tend to report fewer flashbulb memories, possibly because of difficulties in the binding process necessary to form strong episodic memories or because as we age we tend to get better at regulating how we react to emotional events and focus more on positive events, thus reducing flashbulb memories, especially for negative events.

3. **Prospective Memory:** This is memory to perform an event in the future – such as remembering to take medications, call someone, or buy something at the store on the way home. In day-to-day tasks, older adults generally perform as well as or better than younger adults – even though they often perform worse when the tasks take place in the laboratory.



4. **Semantic Memory:** This is our general knowledge storage system – where we store all of the facts, trivia, and knowledge of the world. Among other things, it includes our knowledge of language and how to use it, allowing us to communicate. This type of memory remains constant or improves as we age – possibly because of additional “time in the world” and experience. For example, crossword puzzle performance improves across the lifespan.



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