

# Everyone Knows Memory Fails as You Age. But Everyone Is Wrong.

Even 20-year-olds forget the simplest things.

**By Daniel J. Levitin**

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I'm 62 years old as I write this. Like many of my friends, I forget names that I used to be able to conjure up effortlessly. When packing my suitcase for a trip, I walk to the hall closet and by the time I get there, I don't remember what I came for.

And yet my long-term memories are fully intact. I remember the names of my third-grade classmates, the first record album I bought, my wedding day.

This is widely understood to be a classic problem of aging. But as a neuroscientist, I know that the problem is not necessarily age-related.

Short-term memory contains the contents of your thoughts right now, including what you intend to do in the next few seconds. It's doing some mental arithmetic, thinking about what you'll say next in a conversation or walking to the hall closet with the intention of getting a pair of gloves.

Short-term memory is easily disturbed or disrupted. It depends on your actively paying attention to the items that are in the "next thing to do" file in your mind. You do this by thinking about them, perhaps repeating them over and over again ("I'm going to the closet to get gloves"). But any distraction — a new thought, someone asking you a question, the telephone ringing — can disrupt short-term memory. Our ability to automatically restore the contents of the short-term memory declines *slightly* with every decade after 30.

But age is not the major factor so commonly assumed. I've been teaching undergraduates for my entire career and I can attest that even 20-year-olds make short-term memory errors — loads of them. They walk into the wrong classroom; they show up to exams without the requisite No. 2 pencil; they forget something I just said two minutes before. These are similar to the kinds of things 70-year-olds do.

The relevant difference is not age but rather how we describe these events, the stories we tell ourselves about them. Twenty-year-olds don't think, "Oh dear, this must be early-onset Alzheimer's." They think, "I've got a lot on my plate right now" or "I really need to get more than four hours of sleep." The 70-year-old observes these same events and worries about her brain health. This is not to say that Alzheimer's- and dementia-related memory impairments are fiction — they are very real — but every lapse of short-term memory doesn't necessarily indicate a biological disorder.

In the absence of brain disease, even the oldest older adults show little or no cognitive or memory decline beyond age 85 and 90, as shown in a 2018 study. Memory impairment is not inevitable.

Some aspects of memory actually get better as we age. For instance, our ability to extract patterns, regularities and to make accurate predictions improves over time because we've had more experience. (This is why computers need to be shown tens of thousands of pictures of traffic lights or cats in order to be able to recognize them). If you're going to get an X-ray, you want a 70-year-old radiologist reading it, not a 30-year-old one.

So how do we account for our subjective experience that older adults seem to fumble with words and names? First, there is a generalized cognitive slowing with age — but given a little more time, older adults perform just fine.

Second, older adults have to search through more memories than do younger adults to find the fact or piece of information they're looking for. Your brain becomes crowded with memories and information. It's not that you can't remember — you can — it's just that there is so much more information to sort through. A 2014 study found that this "crowdedness" effect also shows up in computer simulations of human memory systems.

Recently, I found myself in an office elevator in which all the buttons had been pushed — even though there were only three of us in the elevator. As the elevator dutifully stopped on every floor, one of the people standing next to me said, “Looks like some kid pressed all the buttons.” We all laughed. I thought for a moment and offered, “I was that kid about 50 years ago,” and we all laughed again. And then I thought: My memories of being 10 years old are clearer than my memories of 10 days ago. Shouldn’t that seem odd?

But in the warm, familiar privacy of my own mind, it didn’t seem odd at all: I am that same person. I don’t feel 50 years older. I can see the world through the eyes of that mischievous 10-year-old. I can remember when the taste of a Butterfinger candy bar was the most delectable thing in the world. I can remember the first time I encountered the grassy smell of a spring meadow. Such things were novel and exciting back then, and my sensory receptors were tuned to make new events seem both important and vivid.

I can still eat a Butterfinger and smell spring meadows, but the sensory experience has dulled through repetition, familiarity and aging. And so I try to keep things novel and exciting. My favorite chocolatier introduces new artisanal chocolates a few times a year and I make a point to try them — and to savor them. I go to new parks and forests where I’m more likely to encounter the smells of new grasses and trees, new animal musks.

When I find them, these things I remember for months and years, because they are new. And experiencing new things is the best way to keep the mind young, pliable and growing — into our 80s, 90s and beyond.

Daniel J. Levitin is a neuroscientist and the author of “Successful Aging: A Neuroscientist Explores the Power and Potential of Our Lives,” from which this essay is adapted.

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