



ANDREW E. BUDSON, MD
MAUREEN K. O'CONNOR, PSYD

SEVEN
STEPS TO
MANAGING
YOUR
MEMORY

What's Normal, What's Not, and
What to Do About It

Seven Steps to Managing Your Memory

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ANDREW E. BUDSON, MD

Neurology Service, Section of Cognitive & Behavioral Neurology and
Center for Translational Cognitive Neuroscience
Veterans Affairs Boston Healthcare System
Alzheimer's Disease Center & Department of Neurology
Boston University School of Medicine
Division of Cognitive & Behavioral Neurology, Department of Neurology
Brigham and Women's Hospital
Harvard Medical School
Boston, MA
Boston Center for Memory
Newton, MA

MAUREEN K. O'CONNOR, PSYD

Psychology Service, Section of Neuropsychology, and
Center for Translational Cognitive Neuroscience
Bedford Veterans Affairs Hospital
Bedford, MA
Alzheimer's Disease Center, Department of Neurology
Boston University School of Medicine
Boston, MA

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Preface

- You walk into a room to get something and forget why
- You cannot think of the name of a friend at church even though you have met her a half-dozen times
- You cannot remember as many details of important events of your life as your spouse, including those such as your wedding and family vacations
- A week after seeing a movie you have trouble remembering the name of the movie and parts of the plot
- When you are driving and not paying attention, you take one or more wrong turns and end up somewhere you didn't intend to be
- You cannot come back with the correct items from the store unless you write them down and look at the list
- You spend too much time looking for your keys, glasses, wallet, or purse
- You find yourself having difficulty finding your car in a parking lot
- You find yourself looking at the calendar multiple times a day to remember your schedule
- Your family tells you that you've asked that question before

Do some of these experiences sound familiar?

Do you find it difficult to know which of these experiences are likely due to normal aging and which are likely due to a memory disorder?

Do you sometimes have these or other memory problems?

Do you joke that you have “senior moments” or suffer from “CRS” (frequently translated as, “can't remember stuff”)?

- Have you ever wondered—or worried—whether a slip of memory could indicate the start of Alzheimer’s disease?
- Do you want to have your memory evaluated but are not sure how to go about it?
- Are you nervous about what the evaluation will consist of and what will and will not be covered by Medicare or other insurance?
- Would you be interested in taking a medication if it would actually improve your memory?
- Are you interested in helping your memory with healthy foods and diets but confused by all the conflicting claims?
- Would you like to know whether doing crossword puzzles or playing computer games can improve your memory and stave off Alzheimer’s disease?
- Do you want to start exercising to help your memory but are not sure what is the right type or amount of exercise to do?
- Have you been diagnosed with mild cognitive impairment?
- Have you been diagnosed with Alzheimer’s disease?

If you answered “yes” to any of these questions, this book was written for you. We can help you with your memory. We can explain which lapses of memory are normal and which are not. We can teach you diets and exercises that can help. We can provide you with strategies and activities to improve your memory and keep it strong. And we can help you know when you should see your doctor and what your doctor should do about your memory problems.

In our practices as a neurologist and a neuropsychologist, we have evaluated several thousand individuals with concerns about their memories, just like you. We help them understand when their memory difficulties are due to normal aging, vitamin deficiencies, or depression and when they are due to diseases such as Alzheimer’s. Depending upon the cause of the problem, we then recommend particular medications, vitamins, diets, exercises, or group activities, and sometimes even clinical trials of new medications being developed.

So why now and why this book? When we are discussing the results of these evaluations and our recommendations with individuals, we often wish that we had more time—more time to explain our rationale as to why their memory problems are likely due to normal aging versus a serious disorder, more time to explain how and why a medication works, and more time to explain the pros and cons of various treatments and recommendations. This book provides us with the opportunity to tell you all of the information about these and other topics, from which you can take in as little or as much detail as you would like.

Although you may feel worried about having memory problems, today there is more we can do to diagnose and treat memory problems than ever before. In just the last few years there has been an explosion of new diagnostic tests and criteria to help evaluate memory loss, as well as a huge expansion in our knowledge of treatments, diets, and exercises to help memory in individuals aging normally as well as in those with mild cognitive impairment, dementia, and Alzheimer's disease. (Yes, we can even help those diagnosed with Alzheimer's disease.) This book is our opportunity to share these advances with you and help you manage your memory in seven basic steps.

Acknowledgments

The genesis of this book began with the excellent questions posed to us by individuals with memory concerns and their families. We would therefore like to begin by thanking them for the inspiration and guidance they have given us. Next, we would like to thank our friends and family members who read various drafts of this book and provided their invaluable feedback: Fred Dalzell, David Wolk, Jeanie Goddard, Amy Null, George Null, Richard Budson, Sandra Budson, Leah Budson, Adnan Khan, Brigid Dwyer, Kate Turk, Cecilia McVey, Peter Grinspoon, Suzanne Gordon, Barbara Wojcik, Nan Pechenik, Susan Fink, and Barbara Mindel; we couldn't have done it without you. An additional special thanks goes out to Dennis O'Connor and Todd Harrington for their support. We are also grateful to our colleagues and mentors who have taught us so much about caring for individuals with memory concerns, including Paul Solomon, Elizabeth Vassey, Kirk Daffner, Dan Press, David LaPorte, Michael Franzen, Keith Hawkins, Richard Delaney, Patricia Boyle, Malissa Kraft, Lee Ashendorf, Helen Denison, and Edith Kaplan. Finally, a big thanks to our editor, Craig Panner, who saw our vision, had the courage to encourage us, and guided and supported us through the process.

The content of this book has been derived from the patients that the authors have seen in their private practices along with

literature reviews conducted solely for the purpose of this book. These reviews and the writing of this book have been conducted during early mornings, late nights, weekends, and vacations. Their contribution to this book was conducted outside of both their VA tours of duty and their Boston University/NIH research time.

How to Use This Book

We set out to write this book to be as useful to as many people as possible. If you are:

- *An older individual with concerns about your memory*, this book was written with you in mind. We suggest that you read the book cover-to-cover.
- *A family member (or friend) of someone whom you are concerned about*, this book was also written for you. We suggest that you read the book cover-to-cover as well.
- *An older individual without any memory problems or concerns, but with a desire to strengthen your memory*, we suggest that you read Steps 1, 2, 5, and 6. Other Steps can be read if you wish.
- *An individual of any age who wishes to learn more about memory*, including late life memory disorders, their treatments, and the diets, exercise, and strategies that can help, please read any Steps you wish.
- *A healthcare professional*, this book can be recommended to your patients to help them better understand memory, memory disorders, their treatments, and the diets, exercise, and strategies that they can do to manage their memory.

- *An educator*, this book can be used as an easy-to-read text on memory and memory disorders, full of case examples.
- *A student who hopes to use this book to improve their performance on exams*, this is not the right book for you. We would suggest *Make it Stick* by Brown, Roediger, and McDaniel.

About the Stories

To make this book more accessible, we have woven stories throughout the text. As we mention below, we hope that these stories will make it easier to understand the issues we are discussing and their implications. If, however, you would prefer to read the text without the stories, please do so. You can skip them altogether, or you can read specific stories when you want more information on a particular topic. We've written the book so that the stories are optional. To make it easier to jump into the stories in the middle, we've included the cast of characters below.

Sue, an 80-year-old woman with concerns about her memory

John, Sue's husband

Jack, a 72-year-old man with concerns about his memory

Sara, Jack's daughter

Sam, a mutual friend of both Sue and Jack. Sam's wife, Mary, has Alzheimer's disease.

Introduction

That could have been embarrassing, Sue thinks to herself. She was halfway through lunch with one of her closest friends, before the name of her friend's husband came to her. *How could I have forgotten?* she thinks again. She is able to remember everything about him—what he looked like, his career as a surgeon, his retirement party—except his name.

Sue was able to cover for this little memory lapse. In fact, she has become quite good at covering for memory lapses, such as trouble coming up with someone's name, and laughing it off when the lapse was noticed. Sue herself, however, isn't laughing.

Sue is worried about her memory. Worried, in fact, is a bit of an understatement. She is absolutely terrified that she is developing Alzheimer's disease. She just turned 80, the same age that one of her friends, Mary, was diagnosed with this disease. Since that time Mary has had to move out of her apartment and into a facility.

Sue hasn't mentioned her concerns to her friends or her children. Her children would only worry and overreact—wanting her to go into one of those “retirement communities.” She doesn't need that . . . after all, she has no difficulty living in her home. She does her own shopping, cooking, cleaning, and she has never been late with a bill payment. Her friends wouldn't be interested in hearing about her concerns. It would only make them anxious about their own, similar memory difficulties—or worse, they

would start to treat her like an invalid and stop including her in their social activities. She has mentioned her concerns to her husband, John. He doesn't think her memory is abnormal, and she doesn't want to worry him by bringing it up again.

Sue thinks about some of her other memory lapses. Just yesterday she walked downstairs to the basement and could not remember for the life of her what she was looking for. It was only when she walked back up to the kitchen that she remembered the roll of paper towels that she needed, which she then successfully walked down to get. She doesn't have trouble remembering things that happened yesterday or last week, but she finds it quite difficult to recall some of the things from her childhood, such as the name of her best friend in second grade. *Is that normal?* Sue isn't sure.

Sue is having trouble remembering names, walking into a room and not knowing why she is there, and recalling some of the information from her childhood. Yet she is completely independent with everything she does in life—and she wants to stay that way. She is quite concerned about her memory. Should Sue be worried?

Let's consider another story. Jack has just come from his local community lodge where Sam, one of his buddies, suggested that Jack get his memory checked out because Sam thought Jack could be developing Alzheimer's disease or dementia.

Could he be right? Jack thinks about Sam's words. He isn't sure whether he should thank Sam—or slug him. Part of him wants to do both. Deep down he knows that Sam is trying to be helpful, but he has a lot of nerve. Sure, Jack knows he has some trouble remembering, but who his age doesn't? Just because Sam's wife has dementia, all of a sudden he thinks he's a goddamn doctor. Not that the doctors know very much about memory problems, from what Jack could tell. Sam had to take Mary to her doctor four times before the doctor actually did anything about it.

Jack considers his memory. He didn't think anything was wrong, at least, not any more than with anyone his age. He is 72, after all. Sure, his memory isn't as good as when he was 32 (or 62, for that matter). At least half his friends—maybe three-quarters of them—have similar difficulties coming up with people's names and remembering the details of what they did yesterday or were going to do the next day. The more he thinks about it, the more he thinks his memory is probably normal . . . better than normal, in fact. How many people his age can list off their buddies from high school and the make, model, and year of the cars that they drove? Heck, he can even remember some of his friends from grade school. Jack appreciates that he doesn't know very much about dementia or Alzheimer's disease but he'd bet that few people his age can remember details of their childhood like he could.

Still, Jack feels unsettled. Sam stressed that the reason he was bringing it up was because there were medications Jack could take that would improve his memory. He doesn't want to be stupid . . . he had seen his neighbor ignore his high blood pressure and then suffer a stroke that left him unable to talk . . . sticking his head in the sand is definitely not the right thing to do. After all, he has never been one to run away from a problem; he'd rather stand and confront it. Perhaps he should call his doctor.

Do the stories of Sue or Jack sound familiar? We will be following Sue and Jack throughout this book to illustrate the seven steps to managing your memory. We will be with them as they gain a better understanding of normal memory (Step 1) and, partnering with their doctor, get a thorough evaluation (Step 2). We'll watch as various disorders are considered and a diagnosis is made (Step 3). We will see the medications they are prescribed (Step 4), the diets, vitamins, and exercise regimes they explore (Step 5), and the habits, strategies, and aids they use to improve their memories (Step 6). We'll also see them struggle with issues of mood, anxiety, and adjustments in their lives that

need to be made. Finally, we'll see where they turn for additional resources and how they plan their future (Step 7).

We hope that these stories—composites of real people we have worked with—will make it easier to understand the issues we are discussing and their implications. If, however, you would prefer to read the text without the stories, please do so. We've written the book so that the stories are optional.

Without further ado, we now turn to Step 1 to understand normal memory and the changes in thinking and memory associated with healthy aging.

Seven Steps to Managing Your Memory

Step 1

LEARN WHAT IS NORMAL MEMORY

Is your memory normal? To answer that question we need to start with a different question: What is normal memory?

In Step 1 we will learn about the problems that are part of normal memory. One thing that makes memory loss tricky, however, is that the difference between normal and abnormal memory isn't necessarily the type of problems that occur but rather the frequency and severity of those problems. Nonetheless, in order for us to begin to help you know if your memory is normal or not, we need to first tell you about the memory errors that can happen to anyone of any age and then let you know what changes occur to memory as we get older.

1

Which Memory Errors Can Happen to Anyone of Any Age?

In this chapter we will take a look at a number of different ways that memory often fails in healthy individuals of any age, leading to forgetting or even distorted and false memories. We'll also begin to explain how memories are formed, stored, and retrieved.

MEMORIES FILL UP THE PAGES OF OUR LIVES

Sue (whom we met in the Introduction) and her husband John are visiting Washington, D.C., for the first time since they took their children there about forty years ago. They are excited to see which parts of the city have remained the same and which have changed. Although she hasn't mentioned it to John, Sue is also using this visit to test her memory—to see what she can and cannot remember of their prior visit. They are eating lunch at the Garden café in the National Gallery of Art.

When we speak about memory, in general we are referring to memory for the episodes of our lives. Think about an episode of your life, such as the last lunch you had with a friend. The episode would include the sights of the restaurant and your friend, the sound of your friend's voice, the smells and tastes of the foods, as well as your thoughts and feelings at that time. When you are creating a memory, the information from your senses, thoughts, and emotions becomes drawn together in a coherent story, just as if you were writing it down. Each separate sensation—say the sound of your friend's voice—would constitute an aspect of the memory. The different aspects would come together to represent the several parts of the episode. For example, one part could be your impressions of the waiter: what he looked like, including his clothing, haircut, mannerisms, and voice. Another part would be what drink you ordered, whether a glass of water, diet soda, or cocktail with a little umbrella in it. There would be a part for your lunch entrée, and a part for what your friend ordered. There would be parts for your conversation—different parts for each topic you discussed.

THE HIPPOCAMPUS BINDS THE MEMORY TOGETHER

When the episode is over (in this case when your lunch is over), the different aspects of each part of the event and the different parts themselves become bound together as a coherent whole: a memory. Once the episode is bound it can then be stored so you can later retrieve it as a whole. In fact, once bound together, thinking about any part of the memory, such as your entrée—or even the smell of your entrée—can bring the entire episode to mind. The binding is coordinated by the hippocampus, the memory center of your brain. There's one on each side, left and right. They are located deep inside your brain on the inside and bottom of each temporal lobe, which are next to your temples

on each side of your head, just behind your eyes. The left hippocampus is somewhat specialized for remembering verbal and factual information, and the right for nonverbal and emotional information.

MEMORIES FADE WITH TIME

After lunch, Sue and John walk across the grassy National Mall to visit the National Air and Space Museum.

“I’m really looking forward to seeing what the Air and Space Museum looks like now compared to how it was when we were here with the kids,” John says as his shoes crunch along the gravel path.

“Are you sure that we visited this museum?” asks Sue. “I don’t recall having been to it before.”

“Yes! I’m absolutely sure. I have a vivid memory of it because we were here on the bicentennial—1976—and it had just opened. You know how interested I was in space then.”

“I know we were here in DC on the bicentennial, I just don’t recall going inside the Air and Space Museum.”

They walk through the door of the museum, enjoying the cool air inside.

Sue looks up and sees the *Spirit of St. Louis*, the Lunar Module, and several other air and space craft. She is now quite sure that John is right, and that she has been in the museum before. She can recall vividly how it felt to be standing under the *Spirit of St. Louis* forty years ago. “John,” she says, “you’re absolutely right. I now remember being here and seeing these hanging planes and spaceships.”

Sue pales slightly as she thinks about having forgotten that she was in this museum before.

Memory is transient; things we remember don’t tend to stick around forever. There is a gradient in which events that occurred recently are relatively easier to remember than events that

occurred in the more distant past. There are many myths about memory, and one of them is that we are supposed to remember everything that ever happened to us, particularly if it was notable, even if it happened long ago. Thus, you may worry if you cannot remember details of that notable vacation you took to Great Britain twenty years ago. However, not remembering details of a vacation from many years ago may be perfectly normal, particularly if you haven't thought about that vacation much over the years. When you think about a memory, it is as if you are re-experiencing and then re-storing the memory again, so it stays fresh and easy to recall. But a memory that doesn't get thought about at all will fade with time. How quickly will it fade? It depends on how strongly the memory is formed in the first place. The more unusual the episode—such as meeting the Queen of England—the stronger the memory will be and the longer it will take for the memory to fade. In later chapters we'll consider other factors that also help determine how strong a memory is when it is formed.

Now let's turn to one of the most common reasons that memories fail.

YOU NEED TO PAY ATTENTION TO FORM A MEMORY

After spending several hours enjoying the Air and Space Museum, Sue and John stroll west along the gravel path of the Mall, past some of the other Smithsonian buildings. Finally they reach their destination, the World War II Memorial, which is new since they were last here.

"Hey Sue, listen to this," John says as he reads from a plaque. "Freedom Wall holds 4,048 gold stars. Each gold star represents 100 American service personnel who died or remain missing in the war. The 405,399 American dead and missing from World War II are second only to the loss of more than 620,000 Americans during our Civil War . . ."

Sue isn't really listening. She has noticed a family that reminds her of their family when they were younger. *The father, trying to teach the children some history. The girl, hanging on every word. The older boy, interested, but trying not to look too interested, because he needs to look "cool." The mother, trying to keep the younger boy from making a run for it . . .*

They continue exploring the monument, making a slow loop around its large grounds.

When they have explored for about a quarter of an hour, Sue notices a wall filled with brass stars. "What do you think," she asks John, "are these stars just here for decoration or do you think that they mean something?"

"I read you the explanation about fifteen minutes ago."

"You did?" Sue asks with surprise.

"Yes. Each star represents 100 American service men and women who died or went missing in the war."

"Oh . . . OK, thanks. I must have forgotten."

Oh no, not another thing I am forgetting! Sue thinks to herself as she feels another wave of anxiety flooding through her.

Not paying enough attention is the number one reason that healthy individuals experience difficulty remembering names, events, and that thing you went into the other room to get. Life is busy. We are often doing two things at once. If you are doing one thing—say, responding to an email—and someone interrupts you to ask you to do a few things, it wouldn't be surprising that you might forget one of the things you were asked to do. The reason is that your attention was focused on your email and not on the person who interrupted you and the things you were asked you to do. This situation is an example of not paying attention causing a failure to learn new information.

Thus, when you are introduced to someone and then thirty seconds later—while still talking to him—you cannot remember his name, the problem is caused by the fact that you were

not paying enough attention to his name; you were probably busy trying to listen to what he was saying or thinking of what you could say next.

Now let's turn to the second type of not paying attention, that which occurs when retrieving a memory.

YOU NEED TO PAY ATTENTION TO RETRIEVE A MEMORY

After their time at the World War II Memorial, John flags down a cab and he and Sue climb in. John gives the driver the name of their hotel in Georgetown and the cab begins moving. It is election season, and everyone is talking politics.

"Where are you from?" asks the driver.

Sue tells him, and asks, "Is everyone in this city obsessed with politics?"

"Yes, absolutely," he responds. "Especially when there's an election coming up."

The three of them continue to chat about politics and the impending election.

"Excuse me," John says urgently to the driver, "but are you sure this is the way to Georgetown?"

"You're absolutely right, sir," the driver responds as he turns off the meter. "You got me talking politics and I started driving to the airport automatically, without thinking about it," he says apologetically, as he turns the car around.

When we are carrying out actions automatically and our attention is focused elsewhere, we may not pay enough attention to a memory we are retrieving. Driving "on autopilot" and ending up in the wrong place is common and just one example of what happens when we are preoccupied and not focusing our attention on the information we should be retrieving—in this case information related to where we are supposed to be going.

We can now explain one of the most common failures of memory: when you walk into a room to get something but cannot remember why. What typically happens is that when we walk in to get a particular item, we often see something else that triggers a new and different thought, and we become distracted, lose the focus of our attention, and then cannot remember what we walked in to get. Here we are suffering from not paying enough attention. For example, let's say that we are going from the kitchen to the basement to get a screwdriver to tighten a knob on a cabinet door. We walk down the basement stairs, see the washing machine right in front of us, and remember that we need to finish doing the laundry. This simple thought of remembering that we need to move the clothes from the washer to the dryer distracts us sufficiently so that we temporarily forget about the screwdriver, and now we cannot recall what we went downstairs to get. When we give up trying to remember why we went downstairs and walk back up to the kitchen, we see the open cabinet door in front of us, remember that we need to get the screwdriver, and this time successfully go down to get it.

Let's take a look at another common memory difficulty.

SOMETIMES A NAME IS ON THE TIP OF YOUR TONGUE

"So who are you going to vote for?" asks the driver, now heading for Georgetown.

"I'm going to vote for Governor Jones," John responds.

"And what about you Ma'am, are you voting for Jones too?"

"Me? No, I'm voting for Senator . . . Senator . . ." Sue says, struggling to bring up the senator's name.

"You mean Senator Smith?" asks the driver. "Yea, he's got my vote too. Least bad of the bunch, in my opinion."

Have you ever been at a party and seen someone you know approaching you from across the room but cannot remember her name? You may remember many things about her—she lives in your town, has a son and a daughter, works at the school, and plays golf—but you can't remember her name, even though you know it and you can almost feel it “on the tip of your tongue.” Good news—it's completely normal. Having a name “on the tip of your tongue” is the most common example of blocking—not being able to retrieve information from your memory even when it is in there.

Sometimes blocking a name occurs because you keep thinking of a similar but incorrect name. The incorrect name is “blocking” the right one. That's why if you stop trying to retrieve the name and think about something else for a while, the correct name may pop into mind.

Thus far we have examined how memories fail when we are trying to store or retrieve information. Let's now turn to how memories can become mixed up, distorted, and outright false.

SUGGESTED INFORMATION CAN BE TURNED INTO FALSE MEMORIES

The next day Sue and John are planning to visit the Lincoln Memorial.

“I'm really excited to see it,” Sue says as they are getting dressed in the hotel. “I know I've seen the Lincoln Memorial on TV and from a distance, like yesterday, but I don't think I've ever been to it up close, in person. I know it is supposed to be impressive.”

“Sue,” John begins, “we definitely saw it with the kids on that first trip. I'm absolutely sure about it. I remember trying to keep their attention long enough to read them the Gettysburg Address from the wall before they started running all over the place. I think I got about halfway through before I gave up . . . everyone's kids were running around, and it was a losing battle.”