CHAPTER 1

Introduction: Can Memory Ability be Improved?

And in the end, it's not the years in your life that count. It's the life in your years. Abraham Lincoln (1809–1865)

You can't open the newspaper or watch the news without hearing a story about memory and ways to improve it. Approximately 10% of older adults have dementia and an additional 10% have mild cognitive impairment. People are concerned about declining memory ability, and many are motivated to do something about it. The good news is that there are things we all can do to improve our memory ability and reduce the chance of developing dementia.

This book contains information from recent scientific studies regarding ways that people can maintain or even improve their ability to make new memories. In addition, this book provides valuable information about how to create a cognitive enhancement program for yourself, loved ones, people living in facility-based settings, or anyone else who wants to maximize their brain health and memory ability.

A HOLISTIC AND MULTIFACTORIAL APPROACH

Throughout this book, I will assert that maintaining good memory and cognitive abilities requires a holistic approach that doesn't rely only on one factor or on one type of intervention. Memory and cognitive abilities are determined, in part, by factors that we cannot control, such as our genetic make-up, age, and previous life history. There are, however, many factors that affect people's memory ability and their likelihood to develop dementia that are very much in their control. For example, cognitive (thinking) exercise, physical exercise, body weight, nutrition, quality of sleep, exposure to stress, pharmaceutical intake, social support, and mood have all been linked to memory ability and the likelihood of developing dementia. In this book, we will look at the latest research to find and understand the factors that affect memory ability and the likelihood of

developing dementia. Then we will discuss how to modify one's behaviors, lifestyle, or environment to take advantage of what we are learning in neuroscience, medicine, and psychology. I have included extensive citations within most chapters, and full references are located at the end of the book, so those who are interested in learning more can find the research that this book is largely based upon.

Taking a holistic medical and psychological approach certainly isn't a new strategy. For example, psychologists often recommend talk therapy in conjunction with pharmaceutical interventions to treat depression. Likewise, diabetes researchers have found that the best treatment outcomes occur when a holistic approach is taken (e.g., see Knowler et al., 2002). We also know that cardiac patients benefit from a multifaceted approach that focuses on diet, physical exercise, and stress reduction in addition to pharmaceuticals.

CAN OLDER ADULTS REALLY INCREASE THEIR MEMORY ABILITY?

Many current memory programs rely on memory tricks or mnemonics, which, in my opinion, are not appropriate for many older adults who are already struggling from an impaired ability to concentrate and a reduced ability to make new memories. While these strategies do have their place (and they will be briefly discussed in Chapter 10), this book is going to focus more on keeping the brain and body working at their optimal levels. Mnemonics (and the books and memory programs that rely on them) don't appear to lead to long-term and meaningful changes in most older adults' memory ability (e.g., O'Hara, Brooks, Friedman, Schröder, Morgan, & Kraemer, 2007), making them somewhat outside the primary focus of this book.

With that said, there is an ever-growing body of knowledge that shows it is possible for older adults to maintain or improve their memory ability. Throughout this book, we will focus on the factors and interventions that appear to make a significant impact on cognitive functioning. It is important, however, to note from the onset that the most effective and powerful interventions usually require significant work and effort on the part of the individual. Scientists are discovering many factors that seem to affect our memory ability and the likelihood of developing dementia. I think you will be amazed when you start reading about all the factors that affect our memory ability.

One of the most important findings in brain and memory research is that it may be possible to prevent a decrease in memory ability by staying mentally active. However, many people are not anywhere close to getting the level of cognitive stimulation that they could. Many independent older adults don't challenge themselves to learn new things nor do they seek out new experiences; such inactivity can lead to brain atrophy, a decline in memory ability, and

eventually a further withdrawal from cognitively stimulating activities. When independent older adults' memory deteriorates, they may be forced to move out of their home to someplace that provides more care, such as an assisted living facility (ALF). Once in an ALF, as more than one million Americans are, their memory ability is likely to further deteriorate because they will probably receive even less cognitive stimulation than they had while living on their own. Assisted living facilities provide a valuable service by helping people with cooking, cleaning, shopping, transportation, making appointments, and sometimes even reminding residents when to take their medication. However, once older adults decrease their engagement in the above activities, they usually get even less cognitive stimulation and are therefore at even greater risk for developing memory problems that could further decrease their independence and quality of life. Three chapters in this book were written to help people take advantage of the plethora of research findings that have shown us that staying mentally active can lead to better memory ability. In Chapter 4 we will discuss the research that supports the *Use It or Lose It* theory of memory and aging. Then in Chapter 12 I will describe many different cognitively stimulating activities that can be used to create a group-based cognitive enhancement class for older adults. In addition, people who are concerned about their own memory, loved ones who are concerned, or caregivers of older adults can also use these activities to create an individualized program of cognitive stimulation. The activities in this book were designed or chosen because they target and strengthen key areas of the brains (e.g., frontal lobes). The activities will also help people improve certain abilities (e.g., attention and word finding) that are vulnerable to the aging process. In Chapter 13 I will present information about how to implement a cognitive enhancement program and share insights and strategies that will maximize success.

LIFESTYLE APPROACH

About half of how "good" your memory and thinking skills are is determined by genetics, the other half is determined by our environment, lifestyle, and behavioral choices. This book is inherently optimistic because it focuses on the half we can control rather than on our genetics. When necessary, I will mention genetic influences, but this book will focus on the lifestyle factors that are under our control.

For a long time, the only risk factor for dementia that was widely replicated by researchers was age. Not surprisingly, increased age does indeed lead to an increased risk of developing Alzheimer's and other types of dementia. There isn't, however, anything we can do about our chronological age. Fortunately, many researchers interested in helping older adults maintain their cognitive abilities and quality of life have looked for and found risk factors associated

with memory decline and dementia, and they have particularly searched for risk factors that are under our control (e.g., see Haimov, 2006). Here is a partial list of risk factors associated with an increased chance of developing memory problems or dementia:

- Smoking
- Sedentary lifestyle
- Obesity
- Poor diet
- High blood pressure
- Chronic alcoholism
- Anemia or low iron levels
- Poor diet
- Atherosclerosis (hardening of arteries)
- Pre-diabetes or insulin resistance
- Diabetes
- Visual and auditory impairments
- Depression
- Poor social support networks

FINDING A NONPHARMACOLOGICAL CURE

There is another way to view memory maintenance and dementia prevention. Given that Alzheimer's disease and other forms of dementia usually affect people very late in their lives, delaying symptoms could be as good as finding a cure for many people. In other words, if they never get the disease, or never develop significant symptoms of dementia, their lives won't be negatively affected by memory impairment. For example, it is now widely accepted that if we can delay the onset of dementia by just five years, the incidence could be cut in half (Pasinetti et al., 2007). All we need to do is figure out how we can delay dementia-related symptoms. Fortunately, a plethora of research has been done in the past 10 years, which is informing us how to do just that.

Small, Silverman, Siddarth, Ercoli, Miller, Lavretsky, et al. (2006) conducted a study to assess whether a short-term lifestyle intervention could cause an improvement in memory ability and lead to changes in how the brain functions during cognitive tasks. The researchers randomly assigned participants to either a control group that didn't do anything different or they were assigned to a 14-day lifestyle intervention that included a brain-healthy diet, relaxation exercises, cognitive exercises, and cardiovascular conditioning. The lifestyle-intervention group experienced improved efficiency in the frontal lobes of their brains. The frontal lobe is probably the most important of the four lobes of the brain in helping us pay attention and make new memories. The lifestyle-intervention

group also improved their verbal test scores, even though the intervention only lasted 14 days. I am advocating a similar albeit more long-term approach to memory maintenance.

THE APPROACH USED THROUGHOUT THE BOOK

Like the book itself, most chapters will start with the scientific evidence that suggests that some factor or behavior is affecting adults' memory ability and their likelihood of developing dementia. For example, there are entire chapters on the effects of nutrition, physical exercise, cognitive stimulation, sleep, mood, and stress on memory ability and the likelihood of developing dementia. After reviewing how the above factors affect memory ability, each chapter will discuss possible interventions that can be implemented in an attempt to maximize memory ability.

This book was written for people who have normal memory abilities and want to maintain them. It was also written for people who want to help older adults who are just beginning to have mild memory impairment from developing full-blown dementia. However, it is important to note that this book is *not* intended to be used to help people who already have severe memory difficulties. The prognosis becomes much less optimistic as people develop more severe memory problems, especially for those who have been gradually worsening for many years. It is probably the case that there has been too much damage to the brain's cells and circuitry once people have developed mid- to late-stage dementia. With that said, I have seen quite a few people with mild cognitive impairment and even some with early-stage Alzheimer's disease improve their ability to make new memories by using some of the techniques and strategies suggested in this book. However, I have never seen someone with mid- to late-stage dementia improve their ability to make new memories by using the activities and behavioral recommendations in this book.[1] Even so, this book does contain valuable information for people who care for loved ones or patients with full-blown dementia.

Each year I have the opportunity to speak with thousands of older adults and their family members who are concerned about memory loss. There are some common questions and concerns that many people seem to have. Throughout the

[1] Although there are set diagnostic criteria for dementia, I see a fair amount of variability in how people use the terms early-, mid-, and late-stage dementia. Another thing that should be noted is that although I don't know how to improve memory ability in late-stage dementia patients, there is a lot we can do to help them maintain their dignity and quality of life. A lot has been written on how to work with more severe dementia patients. The interested reader will find a plethora of resources. I recommend contacting the Alzheimer's Association or visiting their Website at http://www.alz.org if you are interested in learning more about helping someone who already has dementia.

book there will be "Ask the Memory Doctor" boxes, which will include frequently asked questions about memory and aging. For example, many older adults and adult children of aging parents ask

1. My mom had Alzheimer's disease. Should I be worried that I will get it?
2. I know someone who is beginning to have memory problems, but they are unmotivated to do anything about it. Is there anything I can do to help them?
3. Should I be taking ginkgo biloba for my memory?
4. I want to take advantage of adding more fish into my family's diet, but I am concerned about mercury and other pollutants. Won't the pollutants in fish cancel out any positive effects from the omega-3 fatty acids?
5. If the "use it or lose it" theory is true, then why did Ronald Reagan get Alzheimer's? He must have led a very stimulating life.

The "Ask the Memory Doctor" boxes provide concise and useful information to anyone who has had questions about memory and aging.

There is a major hurdle that geriatric professionals and loved ones must overcome in order to help older adults benefit from the knowledge we have about preventing memory problems. We have to convince people to actually do the behaviors that can improve their memory ability and quality of life. People who work with older adults frequently claim that they have a difficult time getting unmotivated people to do the things that could improve their well-being. If you go to an exercise class at a residential care facility that has 100 residents, you are lucky to see 10 people who regularly participate in the exercise class. If you go to an average activity program at the same facility, you will probably see even fewer people in the class. If you start a high-quality memory enhancement class at an ALF, about half of the people who could greatly benefit from the program will be unwilling to go to a single class. In Chapter 14 we will discuss how to motivate people to do the activities prescribed throughout this book. There is no magic thing that we can say or do, but I will present some of the best information that the field of psychology has regarding ways to increase people's motivation. One of the ways that we can help people become more motivated to do the things that can improve their memory ability is to share with them the benefits associated with doing those behaviors. Many people will simply say things like "You should eat fruits and vegetables in order to maintain your health." I believe you will get a very different effect when you tell people, "Eating fruits and vegetables that are high in antioxidants can prevent your cells from dying or being damaged to the point that they won't work. Here is a list of fruits and vegetables that are very high in antioxidants. . . ." Similarly, it is one thing to say, "You need to reduce your stress level." I believe it is much more motivating to say, "Research has shown that people who are stressed out have brain cells that have aged much faster. And stress will impair your ability to make new memories. Here are some things that researchers have found can reduce older adults' stress levels and thereby help their memory ability. . . ." In

other words, if we want to help motivate people to do the right things, we need to tell them exactly what the benefits of doing the behaviors will be. I have written this entire book with that principle in mind. Personally, I have found learning more about the potential benefits of living a certain lifestyle to be very motivating. It is often very difficult to begin a physical exercise program, reduce consumption of saturated fats, lose weight, or do mental activities that one finds very challenging. But regardless of age, almost all of us could benefit from being a little more motivated to do the activities that promote health, longevity, and quality of life.

I have striven to present an honest and holistic message, using a multifaceted and scientifically based approach. The bottom line is that it *is* possible to improve one's memory ability, but it takes work and a concerted effort. The rewards for such work, however, are invaluable—increased memory ability and a better quality of life.

IT IS (ALMOST) NEVER TOO LATE (OR EARLY) TO START ENHANCING MEMORY

Many older adults or their adult children don't seek help until dementia has firmly set in. Unfortunately, if people wait until severe memory problems develop, there is less we can do to help them improve their memory ability or even slow it down. It is common for adult children of older adults to be unaware of the signs of developing dementia, often because they mistake the fact that their parent can recall details from the past as a sign that their parent's memory ability is intact. Another common reason that loved ones have difficulty identifying dementia is that the signs are not always obvious if the affected person is living in a very familiar environment. For example, if someone who is developing dementia has lived in the same home for 30 years, they will often be able to skillfully navigate through their home and almost unconsciously know where things are and how to do things such as prepare food or wash clothes. The full level of impairment is often not noticed until the affected person is required to move to a facility that can provide more care. Once at their new home, the actual level of impairment and confusion becomes much clearer. Such failures to notice the cognitive decline are common and are certainly not the fault of adult children. I believe it is the responsibility of psychologists, medical professionals, and others who work with older adults to educate people and help them be able to identify memory problems. This is easier said than done, as it is normal to experience some loss of memory ability and the ability to concentrate as we age. In addition, I believe we also must educate the public about the risk factors associated with memory problems and dementia, especially since many of them are reversible. For example, I don't think that when the average person sees an older adult eating a diet high in red meat and low in fish, the first thing that comes to their mind is

that this diet may be contributing to the older adult's memory problems. Moreover, I don't think people are the least bit concerned to see that an 80-year-old who is very capable of walking a mile at a time doesn't ever do so. I hope that increased awareness of dementia-related risk factors will decrease the prevalence of memory problems in our society.

Aside from being aware of lifestyle factors that may be contributing to memory problems, we also need to be aware of memory problems before they become too severe. Once someone is diagnosed with dementia, they have, almost by definition, already experienced significant brain damage. And much of the damaged tissue cannot be regenerated. People need to become engaged in promoting good brain and memory health much earlier.

Most people who have mild cognitive impairment can improve their memory ability if they make some changes in their lifestyle. It is important to note, though, that the changes associated with memory and cognitive problems often begin during middle age. For example, some researchers have found the telltale signs of Alzheimer's in autopsied brains of people in their 40s. Important regions of the brain associated with memory (i.e., hippocampus) often begin to slowly atrophy in people's 40s. And the density of gray matter in the frontal lobe begins to decrease even earlier! So although it is almost never too late to begin making changes to maximize brain and memory functioning, middle-aged adults should be aware that it is not too early to begin benefitting from the information in this book.

Many middle-aged adults are not aware that they can improve their memory and delay memory impairment by changing behaviors while they are still relatively young. Although many baby boomers are already complaining about occasional forgetfulness, most are many years from being the age when they are at the greatest risk of developing significant and irreversible cognitive problems. However, I believe that people in their 50s or 60s, and even younger people, can greatly benefit from the research that is discussed in this book. Research has shown that even people in their 80s who increase the level of cognitive stimulation experience an increase in cognitive ability (e.g., see Winningham, Anunsen, Hanson, Laux, Kaus, & Reifers, 2003); imagine if they had started getting that stimulation 30 years earlier. We also know that older adults who get more physical exercise have better cognitive abilities. However, if people start doing those types of activities in the 50s and 60s (or even earlier), presumably the long-term benefits would be even greater. Therefore, I believe the research reviewed in this book can also be viewed as a wake-up call for many younger people who want to maintain an active and healthy life for many decades to come.