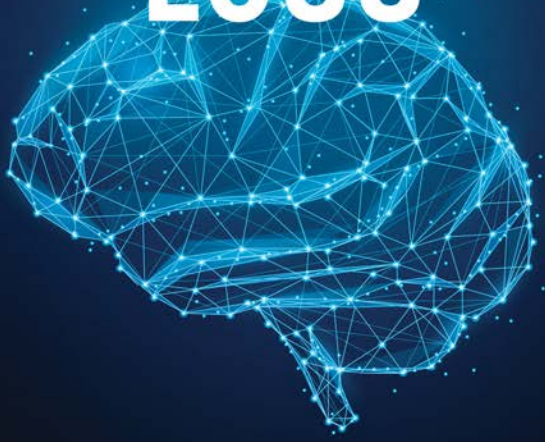
DANIEL G. AMEN, MD

#1 *NEW YORK TIMES* BESTSELLING AUTHOR

CONQUER MEMORY LOSS



SECRETS TO IMPROVING YOUR BRAIN, MEMORY & LIFE

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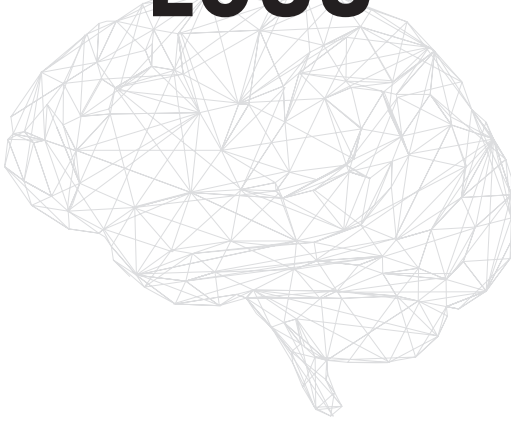

SECRETS TO IMPROVING YOUR BRAIN, MEMORY & LIFE

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Conquer Memory Loss

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MEDICAL DISCLAIMER

The information presented in this book is the result of years of practice experience and clinical research by the author. The information in this book, by necessity, is of a general nature and not a substitute for an evaluation or treatment by a competent medical specialist. If you believe you are in need of medical intervention, please see a medical practitioner as soon as possible.

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INTRODUCTION

THE TIME IS NOW

MEMORY IS THE FABRIC OF OUR SOULS. It enables us to integrate and make sense of the experiences of our bodies, minds, and spirits. It makes us who we are and allows us to keep our loved ones close, even when they are far away. Memory houses our joys, our hurts, and all of life's lessons. It reminds us who is trustworthy and who isn't, who has helped us and whom we need to help. Memory enables us to recall the important events in our lives and keeps us centered and growing. And because it contributes to our values and outlook, it also provides us with a sense of purpose that gives our lives meaning.

Our memories are such a part of us that we often take them for granted. Yet when our memory is damaged, the costs can be high. A diminished memory can rob us of our ability to make good decisions (because we forget important life lessons) and disconnect us from those we love. Memory problems limit our success at work, steal our independence, and ultimately make us vulnerable to anyone who might take advantage of us.

When someone's mental abilities, including memory, deteriorate enough to affect daily life, we say that person has dementia. Worldwide, a new person is diagnosed with dementia every seven seconds.[1] Of the approximately 318 million Americans living today, 45 million—about 15 percent—will get Alzheimer's disease at some point in their lives. Tens of millions more will experience other forms of dementia, and 75 percent of older adults will suffer from memory problems.[2] Plus, more than 200 medication trials have failed to reverse Alzheimer's disease and other forms of dementia.[3] Given the complexity of the illness and how early it begins altering the

brain, we are likely never going to have a medicine that cures it.

Yet new research suggests that it is possible to dramatically improve memory and to prevent and sometimes even reverse some forms of dementia.[4] Given how most doctors approach this issue, however, you cannot count on traditional medicine to rescue your memory.

The Old Approach to Memory Complaints

Here is a common scenario: You are having difficulty remembering conversations, forgetting where you put your reading glasses, or briefly getting lost driving in familiar areas. So you see your primary care physician or local neurologist, who asks you a few questions, gives you some short tests, orders an MRI, and tells you, "Everyone has memory problems as they age. You're normal." It's also common for family members and friends to downplay forgetfulness.

A week or so later, you meet again with your doctor, who says that the report on your MRI came back as "mild, age-appropriate brain atrophy." He or she tells you that you have mild cognitive impairment. You're reassured that it's

common and that you'll likely retain your personality and long-term memory until later in the illness. You're encouraged to get your affairs in order, given a prescription for Aricept (a common memory medication that has short-term benefits but loses its effects after 18 months[5]), and told to schedule a follow-up appointment in six months. Typically, there is no discussion about eliminating risk factors through exercise, diet, supplementation, or memory-training exercises.

That's literally the extent of the workup in 80 to 90 percent of the memory-related cases that come to us at Amen Clinics from the traditional medical system. It's completely ineffective, heartbreaking . . . and unconscionable, given what we know now.

Until recently, health-care professionals assessing the presence of memory problems in patients classified their cognitive functioning as (1) normal with no symptoms; (2) mild impairment observed by patients or their families; or (3) Alzheimer's disease, in which dementia was becoming significant and getting worse.

The National Institute on Aging announced

a significant change in 2011. Based on new brain imaging data, they added a new "preclinical" level. As a result, the current staging guidelines are

1. normal;
2. preclinical: no obvious symptoms, but negative changes can be seen on biomarkers such as brain scans;
3. mild cognitive impairment; and
4. Alzheimer's disease.

Can you see the problem with the original guidelines? Long before symptoms develop, your brain may already be deteriorating, years or even decades before you realize it![6] A UCLA study found that 95 percent of people with Alzheimer's are not diagnosed until they are in the moderate to severe stages of the disorder. Yet the brain of a person diagnosed with Alzheimer's disease at age 59 likely started to show signs of deterioration by the time that person turned 30.

No matter your age, memory symptoms should be taken seriously. Developing brain fog or feeling as if your memory is slipping when

you are in your forties, fifties, sixties, seventies, or even eighties is common, but it's not normal. It is a sign of impending doom.

But while it is true that memory issues are common with age, they are not inevitable. In the presymptomatic stage, when memory problems are minor, help is likely to be most effective. If you're struggling with your memory, even if it seems inconsequential, *now* is the time to get serious about your brain's health.

A Breakthrough Concept

Our decades-long experience at Amen Clinics of looking at the brain, together with the latest scientific research, has convinced me that the traditional approach to memory problems is misguided and leads to unnecessary disease and disability.

Just as many tributaries feed a river that is about to flood and destroy a community, we've discovered that there are many different causes of memory loss. It is no longer accurate to talk about mild cognitive impairment or Alzheimer's disease as single entities with single causes, just as at Amen Clinics we no longer talk about a

single type of depression, addiction, ADHD, or obesity. The ability to identify and address each of the potential causes of memory problems has enabled us to develop a plan to prevent or even reverse these devastating issues.

Conquer Memory Loss will help you identify the specific factors affecting your brain health. It will then provide you with a step-by-step approach to get your memory back, strengthen it, and keep it healthy for a lifetime.

You will learn

- strategies to decrease or eliminate avoidable risks through exercises, nutritional supplementation, and diet,
- how to follow the Memory Rescue Diet (one of the most powerful weapons for memory sustainability),
- memory training and workouts to keep your brain sharp, and
- innovative strategies to enhance brain function.

Here's the good news: *Your brain's history is not its destiny.* Even if you have brain fog or

trouble remembering now, it doesn't mean you always will. You can start having a better memory today. What's more, the plan I lay out to conquer memory loss will also help your energy, mood, anxiety, sleep, weight, and overall success in life. The plan will also help you decrease your risk of developing Alzheimer's disease and other forms of dementia.

The plan for conquering memory loss that I lay out in this short book is based on an insanely simple idea: The best way to sharpen your memory, reverse brain aging, and prevent Alzheimer's is to *eliminate*, *prevent*, or *treat* the risk factors that steal your mind. Almost all these risk factors are either preventable or treatable. Even those that aren't can be ameliorated with the right strategies.

You need this book if

- Your memory has never been good and now it's getting worse.
- Your memory is not as sharp as it was 10 years ago.
- You're having trouble remembering

to take medications or supplements consistently.
- You frequently misplace your keys or phone.
- You often wonder why you came into a room.
- You're embarrassed by forgetting appointments.
- You read a book or an article but don't remember much of it.
- You struggle with brain fog.
- You notice that a loved one's failing memory is interfering with everyday tasks.
- You are concerned about a family member who has been diagnosed with dementia.
- You wonder what you can do to avoid Alzheimer's, which has been diagnosed in one or more of your close relatives.

Rest assured, you don't have to do everything at once! Most people are successful when they make one simple change at a time. Once they

see how easy it is and how much better they feel, they often make scores of other healthy changes.

But regardless of how long it takes to implement the program in this book, the time to conquer memory loss is not once you've been diagnosed with "mild cognitive impairment" or Alzheimer's disease. It's now. Let me show you how.

CHAPTER 1

RECOGNIZE YOUR RISK FACTORS

THE REALITY IS THIS: If you want a stellar memory, you need to know all the potential contributors that can destroy it and address each one. As Jesus told his followers, "You will know the truth, and the truth will set you free" (John 8:32). But first, at least when it comes to adopting a healthier lifestyle, the truth is likely to make you miserable! We don't like to face the truth about ourselves—our weaknesses, bad habits, and vulnerabilities. However, until we own up to them and get serious about change, our attempts will

likely be fleeting, and we'll be distracted by the next popular fad.

But change we must. I truly believe that a single pill will never fix memory decline, aging, or Alzheimer's disease, because there are too many ways trouble can occur. This is a war that must be fought on multiple fronts.

I have organized the key risk factors for memory loss according to a simple mnemonic (memory device), BRIGHT MINDS:

- Blood flow
- Retirement/aging
- Inflammation
- Genetics
- Head trauma
- Toxins

- Mental health issues
- Immunity/infection issues
- Neurohormone deficiencies
- Diabesity
- Sleep issues

You can review your own risk factors by taking the BRIGHT MINDS inventory in appendix 2. For now, let's consider each factor in turn.[1]

B—Blood Flow

Low blood flow in the brain is the number one predictor of future memory problems and Alzheimer's disease and how quickly your brain will deteriorate.[2]

Blood is the channel that supplies cells with nutrients and clears toxins. To keep our brains sharp and healthy for as long as possible, it is critical to protect our blood vessels. In fact, brain cells don't age as quickly as once believed. Research shows it is the blood vessels supporting our neurons that age.[3]

Noting that 20 percent of the body's blood flow is used by the brain, I often tell patients, "Whatever is good for your heart is good for your brain, and whatever is bad for your heart is also bad for your brain." Not only that, but if you have blood flow problems anywhere, you probably have them everywhere.

There are several vascular or blood flow risk factors:

- Cardiovascular disease, including the following:
  (a) Atherosclerosis (hardening and narrowing of the arteries)
  (b) High LDL or total cholesterol
  (c) Heart attack
  (d) Atrial fibrillation
  (e) Hypertension or prehypertension
- Erectile dysfunction
- A stroke or transient ischemic attack (TIA)
- Loss-of-oxygen experience (such as near-drowning or heart stoppages)
- Exercising less than twice a week and/or a slow walking speed

Checkup for Blood Flow Issues

BLOOD PRESSURE

Check your blood pressure regularly. The optimal range is 90–120 (systolic), 60–80 (diastolic). Anything above 140 (systolic) or 90 (diastolic) is considered hypertensive. However, blood pressure

that is too low (<90 systolic or <60 diastolic) can also be a problem.

LAB TESTS

- **Complete Blood Count (CBC):** This blood test checks the health of your blood, including red and white blood cell counts. A low red blood cell count (anemia) can make you feel anxious and tired and can lead to memory problems. A high level of white blood cells may indicate infection.
- **Lipid Panel:** Cholesterol and triglyceride (fat) levels in the blood are also important, especially because they can negatively affect blood delivery to the brain.

Prescription to Reduce Your Blood Flow Risk

These strategies can help support your overall blood flow and improve your cholesterol levels and blood pressure.

1. **Avoid anything that hurts vascular health.** Examples include a sedentary lifestyle, caffeine, nicotine, and dehydration.

2. **Seek treatment for anything that damages your blood flow.** Be serious about addressing coronary artery disease, heart arrhythmias, prediabetes and diabetes, prehypertension and hypertension, insomnia, sleep apnea, and drug and alcohol abuse.

3. **Lose weight if your BMI is over 25.** BMI, an abbreviation for Body Mass Index, is a measure of body fat based on a person's height and weight. To determine your BMI, check any online BMI calculator.

4. **Spend 10 to 20 minutes a day in deep prayer or meditation.** Both prayer and meditation have been shown to improve blood flow to the brain.

5. **Adopt natural strategies to keep your blood pressure healthy.** There are several options here, including eating more plant-based foods, limiting dairy and salt, drinking water, and getting seven to eight hours of sleep a night.

6. **Take medication if you need it.** I prefer to take a natural approach to health problems,

but hypertension or excessively high cholesterol levels can become a crisis if not managed properly.

7. **Exercise!** Regular exercise helps to boost nitric oxide and keep blood vessels open and flexible.

R—Retirement/Aging

Mental decline is normal with age, but it's not inevitable. Increasing age is the most significant clinical risk factor for memory loss and Alzheimer's disease. Our research shows that most people's brains become less and less active with age. Blood flow drops, and people become much more vulnerable to memory problems, brain fog, and depression.

One of the most exciting lessons I've learned from my years of studying brain scans is that your brain does not have to deteriorate. With a little forethought, you can slow or even reverse the aging process in the brain.

I recently met a woman who told me that now that she was 60 years old, she didn't want to have to worry anymore about what she ate or whether

she exercised. She said she was done with that part of her life. If that describes you, I have a question: Are you okay with the consequences of having an older-functioning brain—less energy, brain fog, depression, and bad decisions? As we age, we have less room for error if we want to stay vibrant and healthy. To be at our best and conquer memory loss, we have to be vigilant.

Since the 2008 recession, many people who thought they could retire have had to continue working. The average retirement age rose from 60 to 62. But there can be a silver lining to working longer. A study of nearly 500,000 people found that for each additional year of work, the risk of getting dementia is reduced by 3.2 percent.[4] Working keeps us physically active, socially connected, and mentally stimulated, all of which help prevent cognitive decline. But if your brain is not healthy, you'll have trouble competing against younger talent. Don't let that be you.

Checkup for Retirement/Aging Issues

LAB TESTS

The following tests measure the blood markers of aging and should be part of an annual checkup.

- **C-reactive protein (CRP)** is a measure of inflammation. A healthy range is 0.0 to 1.0 mg/L.
- **Fasting blood sugar and hemoglobin A1C** are two blood tests that screen for prediabetes and diabetes. Age is one of the primary risk factors for both.
- **DHEA (dehydroepiandrosterone)** and **testosterone** are two neurohormones essential to check. DHEA drops with age; higher levels are associated with longevity. Too little testosterone—in both men and women—is associated with depression, poor memory, and low sex drive.
- **Ferritin** blood test measures iron stores. Levels between 50 and 100 ng/mL (nanograms per milliliter) are ideal.

Prescription to Reduce Your Retirement/Aging Risk

1. **Be serious.** After looking at thousands of seniors' brains, I know I'm in a battle for the health of mine. When I don't feel like exercising or eating right, I ask myself, *Which brain*

do you want? An old or a young one? Which do *you* want?

2. **Focus on new learning.** If you want to keep your brain sharp, you must engage in lifelong learning (see chapter 3).

3. **Keep your iron on target.** If your iron level is low, consider taking an iron supplement. If it is too high, you can lower it by donating blood, which benefits you as well as someone else.

4. **Intermittent fasting.** Memory loss is associated with the brain producing too much of certain toxic proteins that damage cells. One way your brain gets rid of these is through intermittent fasting. Think of tiny trash collectors cleaning up the toxins and pieces of dead and diseased cells that gunk up your brain. Nightly 12-to-16-hour fasts have been shown to help.

5. **Get social.** Get involved with your family, church, or other groups. Take a class, form new friendships, share experiences, get physically active, and stay connected with others.

I—Inflammation

Chronic inflammation acts like an ongoing, low-level fire that destroys organs. Just as poor blood flow and oxidative stress can devastate your brain, so can chronic inflammation.

Inflammation is your body's natural way of coping with an injury or infection. It's a vitally important response that must be elicited at the right time and in the right balance. You would never want to completely eliminate inflammation, because your body would not be able to deal with foreign invaders or heal from injuries.

When you are injured or develop an infection, your body's natural defenses jump into action: Blood vessels dilate, blood flow increases to the troubled area, and your immune system's white blood cells (plus substances they produce) rush to deal with the trouble, much like firefighters hurrying to a fire. Nearby areas become swollen, warm, and red as your immune system fights to destroy bacteria and clear the way for healing to begin.

Injury and infection aren't the only things

that trigger or promote inflammation. Others include the following:

- environmental toxins
- smoking
- low levels of vitamin D or omega-3 fatty acids
- hormone imbalances
- gum disease
- gastrointestinal problems ("leaky gut")
- emotional stress
- excess body (especially belly) fat
- high blood sugar levels
- pro-inflammatory foods: sugar and foods that quickly turn to sugar; trans fats; excessive omega-6 fatty acids from vegetable oils

Inflammation that constantly remains on, rather than arising occasionally to heal an injury or infection, is called chronic inflammation. Even though it may operate at a low level, over time, chronic inflammation can damage organs and contribute to a wide range of illnesses, including heart disease, arthritis, gastrointestinal disorders,

cancer, Alzheimer's disease, Parkinson's disease, depression, and chronic pain.

Checkup for Inflammation Issues

LAB TESTS

Testing amounts of the following substances in your blood will help you and your doctor determine the level of inflammation in your body and provide direction on what to do about it.

- **C-reactive protein (CRP)** measures inflammation. The most common cause of elevated C-reactive protein is metabolic syndrome or insulin resistance. The second most common cause is sensitivity to food, such as gluten.
- **Interleukin 6 (IL-6)** is another measure of inflammation. An elevated amount of IL-6 may mean an inflammatory condition is present, such as an infection or an autoimmune disorder.
- **Homocysteine** is an amino acid that, when elevated, is associated with inflammation, atherosclerosis (hardening and narrowing of

the arteries), and an increased risk of heart attack, stroke, blood clots, and possibly Alzheimer's disease.

- **Folate** aids in the production of DNA and other genetic material. It is required for the healthy regulation of our genes. Folate works together with vitamins B_6 and B_{12} and other nutrients to control blood levels of homocysteine.

- **Vitamin B_{12}** is critically important for healthy brain function. Vitamin B_{12} deficiency can potentially cause severe and irreversible damage, especially to the brain and nervous system. Symptoms such as fatigue, depression, and poor memory can occur at levels only slightly lower than normal.

- **The Omega-3 Index** measures the total amount of omega-3 fatty acids EPA and DHA in red blood cells, which directly reflects their levels in the brain. A low Omega-3 Index increases the risk of cognitive decline by as much as 77 percent.[5]

Prescription to Reduce Your Inflammation Risk

1. **Address the health of your gut.** The gut—your gastrointestinal (GI) tract—is often called the second brain because it is loaded with nerve tissue. It is in direct communication with your brain, which is why you get butterflies when you're excited or have loose bowels when you're upset. Anxiety, depression, stress, and grief all express themselves as emotional pain and, quite often, GI distress. So avoid anything that hurts your gut!

2. **Reduce homocysteine.** B vitamins, especially B_6, B_{12}, and folate, help lower high levels of homocysteine, and they also support brain health.

3. **Boost your omega-3s.** The omega-3 fatty acids EPA and DHA can increase blood flow; slow brain atrophy; increase working memory, executive function, and mood; and decrease inflammation and anxiety.

4. **Take care of your gums.** To decrease inflammation, it is critical to avoid periodontal (gum) disease, a risk factor for dementia.[6]

Brush your teeth twice a day after meals, and floss daily. Flossing your teeth is a brain exercise!

G—Genetics

Humans receive 23 pairs of chromosomes—one set from each parent—that are found in the DNA in the nucleus of cells. Each chromosome contains the genes that provide instruction, or coding, for producing the different kinds of proteins that make up our cells. A healthy person has just the right number of chromosomes and the right number of genes. When the number of chromosomes is wrong, or there are extra or defective genes, health problems occur.

People who have family members with severe memory problems, Alzheimer's disease, or another form of dementia, or those who have one or two copies of the *APOE* e4 gene or several other genes, have a higher risk for memory problems. This is especially true for those with a first-degree relative (mother, father, brother, or sister) with memory issues. They are 3.5 times more likely to develop symptoms. A family history of

Parkinson's disease also makes it more likely that people will develop memory issues.

For the past few decades, scientists have been exploring the new field of *epigenetics*, or the way behaviors, emotions, and environment can turn certain genes on or off. As a result, some illnesses become more or less likely in us as well as in our children, grandchildren, and even great-grandchildren. Geneticists now know that our habits, feelings, and environment affect our biology so deeply that they cause changes in the genes that are transmitted to future generations.

In other words, environmental factors like diet, stress, toxins, and prenatal nutrition can affect the activity of the genes that are passed on to your offspring and beyond.

Checkup for Genetic Issues

KNOW YOUR FAMILY HISTORY

Not everyone has taken the time to find out what happened to their relatives. Reach out to family members so that you can be aware of any branches of your family tree in which memory troubles have appeared.

LAB TEST

- **Apolipoprotein E gene (*APOE*) status:** Everyone has two *APOE* genes, and there are three versions: e2, e3, and e4. As with all genes, we inherit one copy from each parent. A person with one *APOE* e4 gene inherited it from one parent. Someone with two *APOE* e4 genes received one from each parent. A person with one *APOE* e4—or worse, two—has a high chance of experiencing memory problems. This gene increases the chance of developing late-onset Alzheimer's disease by 2.5 times if you have one E4, or 5 to 15 times if you have two e4s.[7] Get tested to know if you carry an *APOE* e4 gene and assess your risk. Any doctor can order this test for you.

Prescription to Reduce Your Genetic Risks

1. **Go for screening early.** For those who have genetic risk factors (a family history of memory problems, dementia, or Alzheimer's), early screening—around age 40—that includes questionnaires, cognitive testing, and possibly brain SPECT (single photon

emission computed tomography) imaging (see page 150) is important. Early screening gives you a window in which to address the other risk factors.

2. **Take your brain health seriously.** If you suspect you have a genetic predisposition to memory issues, caring for your brain is critical.

3. **Hop on the exercise bandwagon.** All of us should exercise, engage in new learning, and take care of our blood vessels, but it is even more imperative if you have genetic risk factors.

4. **Avoid head trauma.** To protect your head from injuries and concussions, avoid contact sports and falls, which are much more common as you age. Practice balance exercises and strengthen your muscles to keep them in shape.

H—Head Trauma

In multiple studies, having one or more head injuries has been associated with an increased risk of lasting memory issues.[8] If the injury occurred

before the age of 25, a person has two and a half times the risk of memory problems; if it occurred after 55, a person has almost four times the risk.

Many people think of the brain as firm, fixed, and rubbery, but it's not. It only becomes that way after someone dies and the brain is fixed in formaldehyde. During life, the brain has the consistency of soft butter, tofu, or custard—something between egg whites and Jell-O.[9]

Your very soft brain is housed in a really hard skull that has multiple sharp, bony ridges, which means that the brain is easily damaged. Whiplash, jarring motions (think shaken baby syndrome), blast injuries, and blows to the head can cause the brain to slam into the hard interior ridges of the skull. Each year, about two million new traumatic brain injuries occur.

In addition, because your pituitary gland (the master hormone regulator) sits in a vulnerable part of your skull, it is often damaged in head injuries, causing significant hormonal imbalances.

This is worth repeating over and over: Protect your head. It contains your brain, which runs everything in your life. Seems obvious, right? Yet until very recently, this simple concept escaped

the consciousness of many people in our society, me included. We let little children hit soccer balls with their heads and do dangerous gymnastic routines. People cheer at high school football games when the opposing quarterback is knocked out of the action after a vicious hit to his head.

Traumatic brain injuries—even those considered mild without a loss of consciousness and that occurred decades earlier—cause lasting damage that we can clearly see on brain scans. Those injured areas wreak havoc on people's lives, causing depression, suicidal thoughts, panic attacks, temper problems, addictions, and memory and learning issues.

Checkup for Head Trauma Issues

KNOW IF YOU HAVE HAD A CONCUSSION

Take some time to remember whether you ever sustained a concussion or a blow without a concussion (subconcussive impact). Think back (or ask your parents). Did you ever

fall out of a tree or down stairs?
fall off a horse or roof?

dive into a shallow pool?
fall off a fence headfirst?
have a car accident (as a driver or passenger)?
have whiplash?
sustain a work-related head injury?
suffer a concussion or head injury playing sports?

CONSIDER GETTING A FUNCTIONAL IMAGING STUDY

A functional imaging study, such as SPECT (single photon emission computed tomography) or QEEG (quantitative electroencephalogram), may help pinpoint injured areas and is worth investigating if your memory is not what you want it to be or if you have signs of cognitive impairment.

CHECK FOR LOSS OF SMELL (ANOSMIA)

Loss of smell, or anosmia, is a common consequence of head trauma, and it could indicate a serious problem. The olfactory cortex, the area of your brain involved with your sense of smell, is near your memory centers, and these regions tend to deteriorate and die together.

LAB TESTS

Be sure to assess all the other BRIGHT MINDS risk factors that pertain to you, especially through these blood tests:

- **Omega-3 Index:** Brains with a higher index heal better.
- **HbA1c and fasting blood sugar:** Higher levels impair healing.
- **Thyroid, DHEA, and testosterone levels:** Because of where it sits in the skull, the pituitary gland (the master hormone gland) is often damaged when the brain is injured. Testing and treating any hormone deficiencies is important to help heal from traumatic brain injuries.

Prescription to Reduce Your Head Trauma Risk

1. **Reduce your risk of head injury.** Protect your head, wear your seat belt, and avoid high-risk activities if you care about your quality of life. Sports such as football, hockey, soccer, horseback riding, auto racing, and skiing can be dangerous.

2. **Go and smell the roses.** I mean that literally. There is evidence that repeated exposure to certain odors can improve one's ability to smell.[10]

T—Toxins

As a classically trained psychiatrist, I received virtually no training on the impact of toxins on the brain. It wasn't until I started looking at the brain that I started to realize the connection between toxins and health problems.

Research now shows that many people with allergies, autoimmune diseases, neurodegenerative diseases, diabetes, and cancers have one thing in common: exposure to environmental toxins. Our bodies have systems in place to get rid of toxins (through the gut, liver, kidneys, and skin), but when our detoxification systems are overwhelmed, we experience brain fog, fatigue, and life-threatening illnesses. Toxins in any form damage the brain and increase the risk of memory problems and dementia.

Check these lists of common toxins to see which toxic substances you may have been exposed to, either now or in the past.

Toxins that can be ingested or absorbed

- Polluted or tainted water (including lead and arsenic)
- BPA (bisphenol A, found in plastics, food and drink containers, dental sealants, and the coating of cash register receipts)
- PCBs
- Heavy metals, such as mercury, lead, or cadmium
- Excessive alcohol
- Marijuana
- Many medications, such as benzodiazepines (for anxiety or insomnia) or narcotic pain medications
- Chemotherapy
- General anesthesia in some patients
- Silicone breast implants that have leaked
- MSG
- Artificial food dyes, preservatives, and sweeteners
- Herbicides and pesticides
- Foods manufactured with plastic equipment
- Health and beauty products absorbed through the skin

Toxins that can be inhaled

- Air pollution
- Cigarette smoke, secondhand smoke, marijuana smoke
- Automobile exhaust
- Gasoline fumes
- Toxins in the air near high-traffic areas
- Cleaning chemicals
- Welding or soldering fumes
- Fire-retardant fumes
- Carbon monoxide
- Asbestos
- Aviation fumes
- Fireplace fumes
- Paint and solvent fumes
- Pesticide or herbicide residues
- Mold

Because toxins can affect so many parts of the body, they are associated with a wide range of symptoms. Those that are more directly associated with the brain include poor memory and concentration, word confusion, mood issues, headaches, vertigo, and cravings. Other problems range from abdominal pain, diarrhea,

smelly stools, bad breath, low appetite, and weight issues to skin rashes, fatigue and weakness, aches and muscle cramps, numbness and tingling, tremors, sweats, and problems with temperature regulation.

Checkup for Toxin Issues

LAB TESTS

Your liver has a finite toxin-processing capacity; therefore, it is highly vulnerable to toxic overload. The following tests can help determine how strained it is.

Liver function

- **ALT (SGPT):** Normal range: 7 to 56 units per liter (U/L)
- **AST (SGOT):** Normal range: 5 to 40 U/L
- **Bilirubin:** Normal range: 0.2 to 1.2 mg/dL
- **Zinc:** Normal range: 60 to 110 µg/dL (low zinc will limit detoxification in the liver)

If your liver function tests are high, cut back on your intake of sugar, simple carbohydrates, and alcohol. Also, you and your doctor might consider whether hepatitis or medications

that raise liver enzymes, such as acetaminophen (Tylenol), could be affecting your liver's function.

Kidney function

- **BUN 7:** Normal range: 20 mg/dL
- **Creatinine:** Normal range: 0.5 to 1.2 mg/dL

Skin

- **Check for rashes, acne, and rosacea.** All are clues to detoxification problems.

Prescription to Reduce Your Toxin Risk

1. **Limit your exposure to toxins.** Do the following:

   - *Quit smoking.*
   - *Address drug and/or alcohol abuse.*
   - *Slowly replace "silver" dental fillings.*
   - *Reduce your consumption of toxin-contaminated foods* by buying organic.
   - *Buy and store foods in glass jars* when possible.
   - *Avoid processed meats* (which contain

nitrosamines and cause the liver to produce fats that are toxic to the brain).

- » *Add fiber and fiber-rich foods.*
- » *Drink three to four quarts of clean water a day.*
- » *Do a food detox*. For two weeks, eliminate processed foods, gluten, dairy, nonorganic beef and chicken, farmed fish, the "Dirty Dozen" produce items (see https://www.ewg.org/foodnews/summary.php), soy, artificial sweeteners, alcohol and recreational drugs, and nonpurified water.
- » *Check your home for mold, and change the filters on your heating and cooling system regularly.*
- » *Decrease your use of unsafe health and beauty aids.*
- » *Clean the house thoroughly.*

2. **Strengthen your detoxification systems.** Support your gut, support your skin, and work up a sweat with exercise. Sweating is one of the best natural ways to cleanse your system.

M—Mental Health Issues

Getting your mind right is a critical piece of the puzzle in rescuing and strengthening your memory. Studies have shown that untreated depression, bipolar disorder, schizophrenia, post-traumatic stress disorder (PTSD), ADD/ADHD, and chronic stress significantly increase the risk of memory problems, inflammation, and vascular and immunity issues. Poor mental health can be very potent. In fact, new research indicates that men who are depressed are at greater risk of suffering a heart attack or heart disease than men who are obese, and people with mental health issues die an average of 10 years earlier than their mentally healthy counterparts.[11]

Anything that negatively affects your mind also negatively affects your brain. Virtually all psychiatric illnesses have a significant brain component to them.

For example, chronic stress in midlife has been associated with memory problems later on. Brain circuits involved in chronic anxiety and fear extensively overlap in areas associated with Alzheimer's disease, and chronic stress has been shown to decrease the size of the hippocampus

and prefrontal cortex. Stress is considered a normal part of life when it is occasional and temporary, such as when you feel anxious before an exam or a job interview. When it becomes frequent or chronic, as in prolonged grief, however, it needs to be treated.

Checkup for Mental Health Issues

SCREEN FOR PROBLEMS

Given that ADHD, PTSD, depression, bipolar disorder, schizophrenia, and chronic stress are risk factors for memory problems as we age, it is important to screen for them. You can visit www.amenclinics.com to determine whether you have the common symptoms of ADHD, depression, bipolar disorder, and PTSD and should seek further help.

Prescription for Reducing Your Mental Health Risk

1. **Get treated.** Early treatment is essential to stave off the ravages of psychiatric illnesses. With appropriate treatment, the brain becomes more balanced and works much more efficiently. Work with a skilled mental

health professional—your brain depends on it.

2. **Try these research-proven tips.** Use them to lower stress and boost your level of happiness and overall mental health.

   - Start every day with the words "Today is going to be a great day." Your mind makes happen what it visualizes.
   - Write down the name of one person you appreciate every day. Then tell him or her. Appreciation builds positive bridges between people.
   - Pray about your concerns. When you pray, you turn over your worries to God, who is sovereign, loving, and active in our lives: "Give all your worries and cares to God, for he cares about you" (1 Peter 5:7).
   - Limit screen time. Studies report higher levels of depression and obesity with increased time spent with technology.
   - Exercise. It is the fastest way to feel better.

- Enjoy some dark chocolate. It can boost blood flow to your brain, improve your mood, and decrease anxiety.
- Listen to music. Just 25 minutes of Mozart or Strauss has been shown to lower blood pressure and stress.
- Choose experiences that give you a sense of awe, such as looking at a sunset or something beautiful in nature.
- Drink green tea, which contains L-theanine, an ingredient that helps you feel happier, more relaxed, and more focused.
- Read an inspiring, powerful novel.
- Stop complaining! It rewires your brain to see the negative far too often.
- Do something you love that brings you joy.
- Engage in activities that make you feel competent.
- Learn to forgive. It can reduce negative feelings.
- Help someone else or volunteer. Make time for friends, too.
- Journal your feelings. Not only does it

get them out of your head, it helps you gain perspective.

» Learn to kill the ANTs (automatic negative thoughts). Remember that thoughts aren't necessarily accurate. Whenever you feel sad, mad, nervous, or out of control, write down your negative thoughts. Next, ask yourself if they are true or if they are distorted to make you feel worse. Focusing your mind on positive, rational thoughts will help you feel much better.

I—Immunity/Infection Issues

It is important to constantly strengthen and build up your immunity. Consider the infamous December 1981 trash collectors' strike in New York City. Suddenly, the city's rats got to join in the Christmas spirit with plentiful meals on the sidewalks. But not everyone was as happy as the rodents. Tempers flared. Where did the vermin come from? It turns out they were always there, but when the streets were swept clean of junk, the rats were kept under control. They stayed

hidden because there was nothing in plain sight to eat. During the sanitation department's strike, however, garbage was everywhere, so the rats wound up running rampant, multiplying and spreading disease. So, too, when you put trash in your body or don't regularly keep your immune system healthy, you become vulnerable to "vermin": serious illnesses, immune dysfunction, and brain disease.

Immunity is your body's natural defense system. In a general sense, it has two broad duties: *defense* and *tolerance*. For the first, it helps to defend against invaders from outside your body, such as bacteria, viruses, and parasites. Your immune system also patrols your body, looking for troublemakers, such as cancer cells. Second, the immune system helps determine your tolerance of potential triggers from the outside world, such as allergens, as well as internal attacks, such as autoimmune disorders.

When your defenses break down, you are more vulnerable to infections and cancer. When your body's tolerance is overwhelmed, you have more issues with allergies and autoimmune

disorders, in which your body attacks itself. Both autoimmune disorders and infections (especially when they become chronic) increase your risk of brain fog, memory issues, and dementia.

Checkup for Immunity or Infectious Disease Issues

KNOW YOUR PERSONAL HISTORY

If you have a history of allergies, rashes, or repeated infections, it could indicate an immune system vulnerability.

LAB TESTS

The following blood tests are important to determine the health of your immune system.

- **Complete blood count with differential** to look at the distribution of white blood cells, one of the principal actors of the immune system.
- **Erythrocyte sedimentation rate (ESR):** This common test is a nonspecific measure of inflammation, which is high in autoimmune disorders.
- **Antinuclear antibodies (ANA):** The immune system normally makes antibodies to

help fight infection, but antinuclear antibodies often attack the body's own tissues. Test results are often high in autoimmune disorders.

- **Rheumatoid factor (Rh):** Rh is an antibody measurable in the blood. It can bind to other antibodies and cause problems.
- **Vitamin D:** The liver and kidneys convert vitamin D into a hormone that regulates almost all organs. The blood test to get: 25-hydroxyvitamin D level. A normal level is 30 to 100 ng/mL; an optimal level is 50 to 100 ng/mL.

Prescription to Reduce Your Immunity and Infectious Disease Risk

1. **Work with a knowledgeable health-care professional.** You need a medical partner to diagnose and treat any immune system issues or infections.
2. **Do an elimination diet for a month.** Try staying away from sugar, gluten, dairy, corn,

soy, artificial colors, additives, and preservatives to see if you feel better.

3. **Optimize your vitamin D level.** Vitamin D is essential for brain health, mood, memory, and weight control.
4. **Work on managing stress.** Stress lowers immunity and increases the risk of autoimmune diseases.

N—Neurohormone Deficiencies

When your brain, adrenal glands, sex organs, pancreas, and thyroid gland work together, they produce just the right amounts of hormones: chemical messengers that control many of the body's basic functions. This symphony of hormones can be affected by many factors, both inside and outside your body. When they are working in concert, you feel great. When any of these organs is out of sync, however, you can feel awful. Problems start when too much or not enough of one hormone (or several) is produced, which can throw off the delicate balance.

You can experience two types of problems when your hormones are out of balance:

1. Uncomfortable symptoms that can change how you think, feel, and act, affecting your quality of life
2. An increased risk of illness, such as depression, Alzheimer's, heart disease, osteoporosis, diabetes, and certain cancers

Communication between hormones and the brain is strongly two-way: The brain produces signals that trigger the release of hormones, and hormones from other parts of the body also influence the brain.

Checkup for Neurohormone Issues

LAB TESTS

After age 40, be sure to undergo yearly testing of the following hormones for men and women. Note that each lab determines what readings fall in the normal range, so ask for a lab's standards if they don't provide them.

- **Thyroid panel (blood test):**
  - » *Hormones:* The thyroid produces three main thyroid hormones: TSH, T3, and T4. These hormones are among the most influential in your body, and all have to be in the right balance to keep your brain and body healthy.
    - *TSH:* Anything over 3.0 is abnormal and needs further investigation.
    - *Free T3:* Active thyroid.
    - *Free T4:* Inactive thyroid.
  - » *Thyroid antibodies*
    - thyroid peroxidase (TPO) antibodies.
    - thyroglobulin antibodies (TG).
- **Liver function tests:** Ninety-five percent of T4 is "activated" in the liver, so having a healthy liver is essential.
- **Ferritin level:** Ferritin is like the bus that drives active T3 into the cells; ferritin needs to be above 50 for this to occur.
- **Cortisol (saliva):** Cortisol and DHEA (dehydroepiandrosterone) are produced by the adrenals and are critically involved in your

body's reaction to stress. The cortisol test is best done four times, at intervals throughout the day (to track your daily cycle): when you first wake up, around lunchtime, around dinnertime, and just before you go to sleep. Ideally, your cortisol levels are high in the morning (to wake you up) and taper off slowly during the day and evening, allowing you to fall into a restful sleep at night.

- **DHEA-S (blood test):** Normal blood levels of DHEA-sulfate can differ by sex and age.
- **Free and total serum testosterone (blood test):** Having an optimal level of testosterone is important for your health and well-being. Too much can cause behavioral problems, such as aggression, but too little is associated with depression, poor memory, and low libido.
- **Estrogen and progesterone for women:** These levels can be measured in blood or saliva. Women who have menstrual periods are usually tested on day 21 of their cycle;

postmenopausal women can be measured anytime.

Prescription to Reduce Your Neurohormone Risk

1. **Love your hormones.** To have a great brain, you have to care about the health of your hormones. Make optimizing them a priority, and your life will be much happier.

2. **Limit the bad; expand the good.** To keep your hormones healthy, it is critical to avoid or limit anything that hurts or diminishes them, including smoking, stress, processed food, too much sugar, high amounts of unhealthy fats, wheat, lack of sleep, excessive caffeine, more than a few glasses of alcohol a week, and obesity. To expand the good, exercise, lift weights, get adequate sleep, eat a healthy diet, and manage your stress.

3. **Steer clear of endocrine disrupters.** Pesticides are known to cause hormonal imbalances, and some pesticides have been shown to act as endocrine disrupters, interfering with the

body's natural hormone systems and causing an array of health problems.

4. **Use hormone supplements and medications wisely.** Use bioidentical hormones when possible, as they mimic the molecular structure of the hormones your body makes. Bioidenticals generally have fewer side effects.

D—Diabesity

Diabetes develops when insulin, the hormone that regulates blood sugar levels, becomes deficient or ineffective. The illness has two forms: Type 1 diabetes occurs when the body refuses to make insulin, and type 2 develops when the body mismanages it. In both types, the body is subjected to chronically high blood sugar levels, which damage blood vessels, causing them to become brittle, inflexible, and more likely to break. Damaged blood vessels cannot supply nutrients or take away toxins, which ultimately leads to problems with every organ in the body, including the brain.

Risk factors for diabetes include aging, a family history of the disease, excessive consumption of sugar and high-glycemic foods, obesity, alcohol abuse, exposure to toxins, and a sedentary lifestyle. Watch for these warning signs: increased urination, excessive thirst, increased appetite, and delayed wound healing.

The negative effects of diabetes include increased inflammation, depression, Alzheimer's disease and vascular dementia, strokes, heart disease, hypertension, and accelerated aging. Diabetes has been linked to decreased blood flow to the brain (the number one predictor of future memory problems) and a smaller hippocampus. Scientists have been studying whether medications for diabetes might help people with Alzheimer's, and the answer seems to be yes.

Even mildly elevated blood sugar levels and prediabetes are significant problems and are associated with brain atrophy, memory problems, and dementia.[12] The higher your blood sugar level, the higher your odds of getting dementia.

Here is the scariest part of this story: Diabetes and prediabetes now affect a horrifying 50 percent of the US population.[13] Our sedentary lifestyles and standard American diet (SAD), along with increased toxins, are likely to blame. The great news is that a majority of these cases are preventable. Lifestyle changes have actually been shown to reverse the disease.

Checkup for Diabesity Issues

To make sure your weight doesn't become a health issue, you should always know how you stack up on these health numbers.

BODY MASS INDEX (BMI)

Your BMI is a measure of weight compared to height. An optimal BMI is between 18.5 and 25; the overweight category falls between 25 and 30; over 30 indicates obesity, and over 40 indicates morbid obesity.

LAB TESTS

Get blood tests for your fasting blood sugar, insulin, and hemoglobin every year. If they are

abnormal, think of it as a health crisis to be taken very seriously.

Prescription to Reduce Your Diabesity Risk

The exciting news about diabesity is that, with a targeted plan, you can significantly decrease your odds of diabetes and related illness. As with all the BRIGHT MINDS risk factors, it is important to take the long view and develop a lifestyle you can live with and feel happy about.

1. **Follow the Memory Rescue Diet.** It's especially important to limit high-glycemic, low-fiber foods (sugar and foods that turn to sugar), wheat (including whole wheat), and processed foods, and to eat a diet high in smart carbohydrates, which are high in fiber and low on the glycemic index. This diet will give the pancreas a break from constantly having to secrete high levels of insulin and will make your cells more insulin-sensitive. See chapter 2 for the details of this diet.
2. **Lose weight slowly (if you need to lose).** It's the healthiest way to drop pounds and keep

them off. A good, safe rule of thumb is one to two pounds a week. Here are some weight-loss tips:

- Drink more water.
- Have protein for breakfast to balance your blood sugar.
- Decaffeinated green tea and coffee have been shown to increase metabolism and decrease the risk of diabetes, and both are loaded with antioxidants. Be careful, though, what you put in them.
- Cook with coconut oil.
- Don't drink your calories. The calories you drink are more quickly absorbed than those you have to chew.
- Find a healthy plan to guide you in healthy food choices for the rest of your life—like the Memory Rescue Diet (see chapter 2).
- Take saunas and eat detoxifying foods.
- Don't overdo your weight loss. Being too thin is not the answer. A too-low BMI is associated with cognitive problems.[14]

3. **Exercise!** It's known to improve blood sugar levels and reduce weight, and it also helps with detoxification. Strength training has been shown to be particularly effective.

4. **Check with your physician to see if other treatment is necessary.** Depending on your personal numbers and your genetic risks, you may be able to improve your health without resorting to medication.

S—Sleep Issues

A number of studies link sleep problems, such as insomnia and sleep apnea, to a higher risk of memory problems and dementia. But effectively treating these disorders can have a positive impact on memory and brain function.[15]

Proper sleep is essential for brain health. In fascinating new research, scientists have shown that your brain cleanses or "washes" itself during sleep. The brain has a special waste management system that helps get rid of toxins that build up over the course of a day, including the beta-amyloid plaques associated with Alzheimer's disease. Your brain is so busy managing your life

during the daylight hours that this cleaning system is pretty much turned off. One theory about why people with dementia sleep so much is that their brains are trying to clear out the accumulating plaques/gunk.

Without healthy sleep, the brain's cleaning crew does not have enough time to do its job, and trash builds up, causing brain fog and memory problems. How would your home look if no one cleaned it for a month? That is the effect chronic insomnia can have on your brain, and unfortunately, it is all too common.

Many lifestyle habits, illnesses, and stresses can trigger insomnia, including poor sleep hygiene, depression, worry, restless leg syndrome, hormonal imbalances (especially progesterone in women), and shift work.

Researchers suggest we aim for seven to eight hours of sleep a night.

Checkup for Sleep Issues

GET ASSESSED FOR SLEEP APNEA

If you snore loudly, stop breathing at night, or are chronically tired during the day, get evaluated at a sleep laboratory, or have your

health-care professional order a home sleep apnea study.

DETERMINE THE NUMBER OF HOURS OF SLEEP YOU NEED EACH NIGHT

One way to do this: Whenever you are free to experiment (say, on vacation), go to bed at the same time each night without setting an alarm, and see what time you awaken the next morning. Over a week or 10 days' time, you will discover what your natural sleep needs are. If you are unable to try this, strive to get seven to eight hours each night, which is a healthy amount for most people.

Prescription to Reduce Your Sleep Risk

1. **Treat sleep apnea.** If you have symptoms of the disorder, discuss it with your doctor. Be serious about treatment if you have it.
2. **Avoid sleep robbers.** Negative emotions, medication side effects, and a poor sleep environment can be culprits, as can gadgets close to the bed and drinking caffeine and eating too close to bedtime.

3. **Adopt these sleep enhancers.** To get a better night's sleep and allow your brain time to clean itself up, try one or more of the following ideas.

   - *Set up your bedroom for sleep.* It should be cool, completely dark, and quiet.
   - *Block gadget disruption.* Stash your phone, tablet, and digital watch away from your bed, or at least turn the sound off. Face your digital clock toward the wall.
   - *Ban pets from the bedroom*—or at least keep them off the bed.
   - *Try to fix emotional problems before bedtime.* If you are a worrier, devote about 10 to 15 minutes before bedtime to your nagging concerns; then put a stop to them. If you're at odds with someone, send him or her a positive text or e-mail—or determine to deal with the issue in the morning. Doing so may prevent your anger from festering and growing further. In other words, "don't let the sun go down while you are still angry" (Ephesians 4:26).
   - *Establish and stick to a regular sleep schedule.*

Try to go to bed at the same time each night and wake up at the same time each morning, including on weekends.

» *Read a book before bed.* Preferably, pick up something thick or tedious. Avoid reading from an e-reader or tablet; its light will keep your brain alert.

» *Don't take daytime naps.* Napping is one of the biggest mistakes insomniacs can make, since it compounds the nighttime sleep-cycle disruption.

» *Don't exercise within four hours of bedtime.* Regular workouts are a great way to combat insomnia, but vigorous exercise late in the evening may keep you up.

» *Wear socks to bed.* Warm hands and feet are the best predictors of rapid sleep onset, according to researchers.

» *Cut out caffeinated beverages in the afternoon or evening.* Refrain from drinking coffee, tea, or other caffeinated beverages after 2 p.m.

» *Use the bed and bedroom only for sexual activity or sleep.* Sexual activity releases muscle tension and a flood of natural

hormones. Adults with healthy sex lives tend to sleep better and feel better overall. If you are unable to fall asleep or stay asleep, move to another room.

» *Stay away from benzodiazepines and traditional sleep medications.* When medications are necessary, I often prescribe trazodone, gabapentin, and amitriptyline to my patients.

» *Develop a relaxing nighttime routine that encourages sleep.*