



HARVARD MEDICAL SCHOOL
AFFILIATE

OPTIMIZING YOUR BRAIN HEALTH

Deanna and Sidney Wolk
Center for Memory Health



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Letter from our Medical Director	2
Introduction	3
Working toward Optimal Brain Health	3
I. The Road to Optimization	6
1. It Starts with YOU!.....	6
2. Focus on Your Healthcare	8
3. Feed Your Brain	12
4. Engage in Good Sleep Habits.....	14
5. Get and Stay Active!	16
6. Invest in Social Connection	20
7. Focus on Your Mental Wellness	21
8. Plan for Your Future	25
9. Engage in Research	26
II. Caregivers and Families	28
Family Caregivers	28
Work with a Social Worker	30
IV. Getting a Brain Check-Up	32
What to Expect at a Memory Clinic.....	32
Neuropsychology	33
Medical/Neurological.....	34
V. Resources	36
General Resources.....	36
Resources at the Wolk Center for Memory Health	38
About Hebrew SeniorLife	40
References	41

LETTER FROM OUR MEDICAL DIRECTOR

Dear Reader,

As Medical Director of the Deanna and Sidney Wolk Center for Memory Health at Hebrew SeniorLife, it is my privilege to work directly with patients and families who come to our outpatient medical clinic seeking assessments and care for their cognitive concerns. I take the responsibility of the trust patients and families put in us very seriously, and I am honored to be part of a talented multidisciplinary clinical team whose focus is to provide the best in personalized care. Collectively, our goal is to enable our patients and their families to live their best lives regardless of cognitive status.

With the aging of our population, we are experiencing an ever-increasing risk of medical problems including brain issues, which are of particular concern to so many of us. Currently, more than 5 million people in the United States alone, and over 55 million people worldwide are living with a diagnosis of dementia. Far more are experiencing the first signs of cognitive decline known as mild cognitive impairment and in fact, it is estimated that over 90% of people with mild cognitive impairment are never diagnosed. Thus, valuable time is lost when interventions could be prescribed to prevent or delay disability and dementia.

The good news is that medical advancements in treating and diagnosing dementia are ongoing, improving the potential for easier and earlier diagnosis and more effective treatments to meet the growing demand.

Importantly, there are steps you can take at any stage to influence the trajectory of your brain health. This booklet strives to provide you with the tools you need to make the changes in your daily habits and modifiable lifestyles that will help protect your brain health. Included is information about many of these key factors such as eating healthfully, staying active, staying socially engaged, prioritizing sleep, living with purpose, and so much more.

Our message is simple - There are things that you can and should do today and every day to help optimize your brain function and improve your brain health. It is never too late to start, but it is best to not delay.

Read on to learn more.

Sincerely,

Alvaro Pascual-Leone, M.D., Ph.D.

Medical Director

The Deanna and Sidney Wolk Center for Memory Health



Alvaro Pascual-Leone, M.D., Ph.D.

INTRODUCTION

WORKING TOWARD OPTIMAL BRAIN HEALTH

When we think of brain health, many people tend to focus on just a few functions such as speech or memory, yet the reality is a lot more complex. There are many factors that can impact brain function, and thankfully many ways to optimize your brain health. Optimizing your brain health requires a whole-person approach that looks at, not only your biological health, but your social, behavioral, and emotional health as well as your cultural values and background. This helps greatly with identifying big-picture interventions based on areas of opportunity that can affect the trajectory of your brain health.

At the Wolk Center for Memory Health, we take a holistic approach to help us assess and treat each person. We first look at whether any other conditions could be contributing to cognitive impairment that are unrelated to dementia (*such as medication side effects, depression, and certain other diseases*). In many cases, these conditions can be addressed and cognitive functioning improved. Working within this framework, you too can maximize the potential of your brain health by taking a whole person view of your health and engaging in behaviors that help minimize cognitive risk and maximize cognitive health.

SET YOUR GOALS

This booklet is designed to help those interested in optimizing their brain health find pathways to that goal. It is based on a whole-person approach and will include evidence-based information and recommendations across many areas of life. We hope this guide will empower you to pursue those pathways to brain health that best fit your lifestyle. Additionally, our team at the Wolk Center for Memory Health is equipped to help you dig deeper into these areas of brain health. We can help with troubleshooting challenges, boosting motivation, and finding therapeutic lifestyle modifications and interventions that fit your values and goals. We aim to provide the support patients and their families need to establish and realize their own personal goals for wellness and quality of life. We look forward to meeting you on your journey toward brain health!



WHAT IS BRAIN HEALTH?

There are many components to brain health, and in turn, many different approaches to optimize brain health in later life.

You've probably seen statistics that as people age, there is a much higher likelihood of getting dementia. Contrary to popular belief, cognitive decline is not an inevitable part of aging. Being cognitively healthy is the norm, and there are things you can do now to protect and promote your brain health.

THE AGING BRAIN

Yes, as you age, your brain's processing speed may become slower – one reason why you might take a little longer to come up with the word you're looking for. You may also have a harder time multitasking.

However, when you're older, you've likely accumulated more vocabulary than a younger person. You can also look at the "bigger picture" much more easily. When you're older, you form longer connections between cells in the brain, allowing you to relate things that might seem very different and connect them with memories of people and places. So, where a toddler might see a curved yellow object and think "banana = snack," an older person might see that same object, recognize it as a banana, and remember the taste and smell of their mother's banana bread. An older person's brain has formed the connections to make memories and higher levels of thinking possible. This is why, in many ways, our brains actually get better with age.

WHAT IS COGNITIVE DECLINE?

There is also a difference between forgetfulness and cognitive decline or dementia. Sure, you may have forgotten where you put your keys, but once you find them, your brain knows what

the keys are for and how to drive to the grocery store. Cognitive decline, on the other hand, is when your brain health becomes problematic more so than what we would consider average for someone your age. It is striking to note that individuals experiencing normal cognitive decline are often more concerned about it than others who may not notice any difference. In contrast, when someone is experiencing abnormal cognitive decline, symptoms start to emerge that others do notice. In dementia, the decline in memory, orientation to time and place, judgment, language, and motor and spatial skills are so significant that the person's day-to-day life is impacted.

As information has become more readily available, people have become more familiar with the difference between Alzheimer's disease and dementia. Alzheimer's is a specific disease, while dementia is the manifestation of an underlying condition. Alzheimer's is just one of many conditions that can cause dementia, including Parkinson's disease, Lewy body dementia, and more.

COGNITIVE RESERVE AND PLASTICITY

Having a cognitive disease like Alzheimer's disease does not necessarily mean the person will develop dementia. We have learned from studies that brains may show the pathology of Alzheimer's disease, but the disease may never lead to dementia or the appearance of any symptoms at all. One theory for this is called "cognitive reserve," which refers to how flexible and resilient your brain is and how it copes with damage. The brains of people with Alzheimer's show abnormal levels of the sticky protein beta-amyloid, which forms plaques that disrupt communications between neurons. A person with more cognitive reserve could build more backup circuitry in the brain, rerouting around

the “traffic jams” caused by plaque buildups. In this case, with the same amount of amyloid, they would show much less cognitive decline.

Another neurological concept important to brain health is brain plasticity. This refers to the way the brain adapts and changes based on experiences. Learning a new language, a new dance move, or working hard at things outside of your comfort zone all allow new connections to form in the brain. The mindfulness, concentration, and sense of purpose achieved during these activities strengthen the learning and memory functions of the brain. That’s why as we age, setting and achieving meaningful goals is important for more than just our sense of self-fulfillment and happiness. It helps our brain adapt and extends our memory health as we get older.

WHAT SHAPES BRAIN HEALTH?

There are many physical health conditions that can affect brain health. Reactions to medications, infections, an under-active thyroid, and vitamin deficiencies are just a few of the medical conditions that can mimic signs of dementia. If these conditions are addressed in a timely manner, early cognitive decline can be reversed. That’s why it’s important to see a doctor if you’re concerned about yourself or a loved one.

There are also many lifestyle factors within your control that can optimize your brain health and change your risk of developing dementia. According to the CDC, up to 40% of dementia cases could be prevented or delayed. You can work toward a healthy brain lifestyle by avoiding risky health behaviors such as smoking and excessive alcohol use. You can also practice healthy brain behaviors such as exercising, eating a heart and brain healthy diet, and managing chronic conditions such as high blood



pressure and diabetes. In addition to physical health, there are aspects of our emotional health that also impact our brain health. For example, researchers have found that social isolation is associated with a roughly 50% increased risk of dementia. It’s never too early or too late to make changes, and it’s vital to seek the right coaching and support. You can use the information in this booklet to begin to plan your path toward better brain health. At the Wolk Center for Memory Health, we can evaluate your personal risk factors for dementia, make recommendations for lifestyle changes, and support you through your journey.

WHAT MATTERS MOST?

As you explore the pages ahead, keep in mind as well one simple question, “What Matters Most to You?” Whether you are exploring how to optimize your brain health, or are coping with a diagnosed illness, your focus and our focus should always be on your goals, based on what you perceive to be most important to you. More on that later.

I. THE ROAD TO OPTIMIZATION

1. IT STARTS WITH YOU!

MAKING A CHANGE

Have you ever thought, “I’m going to start exercising!” or “I need to change the way I eat,” or something similar? If you are like most of us, the answer is ‘yes’. Often, we think about making a change, but can’t quite make it happen or have difficulty sustaining that change over time. First, understand that you are not alone and you shouldn’t feel badly about it. In fact, this is such a common experience that scientists have devoted much time and energy over the years researching how we make changes in our behaviors. The good news from that research is that change, no matter how big or small, is within reach, and you already have many of the tools to help support changes in your behavior!

TRANSTHEORETICAL MODEL OF CHANGE

Let’s first talk about the process of making changes. The Transtheoretical Model of Change suggests that behavior change happens by moving along a process where you are ready for, willing to, prepared for, and activating change. In the beginning, you may not be ready to think about changing at all (*Precontemplation*). To move forward, it might be that:

- your awareness shifts (e.g., *I didn’t realize my risk level or I didn’t know that change makes such a difference*)
- something happens you weren’t expecting (e.g., *I find out I have Type 2 diabetes*)
- your personal motivation increases (e.g., *my kids told me I need to be around for my grandkids*) or
- your self-efficacy gets a boost (e.g., *you realize you can make a small change successfully*), or other forms of activation.

These may move you to the stage of truly engaging with the idea of making a positive change (*contemplation*). Moving from *precontemplation* to *contemplation* can be a big challenge, but pulling those motivation levers is often very effective at pushing forward to *contemplation*.

To illustrate, let’s use the example of starting an exercise routine:

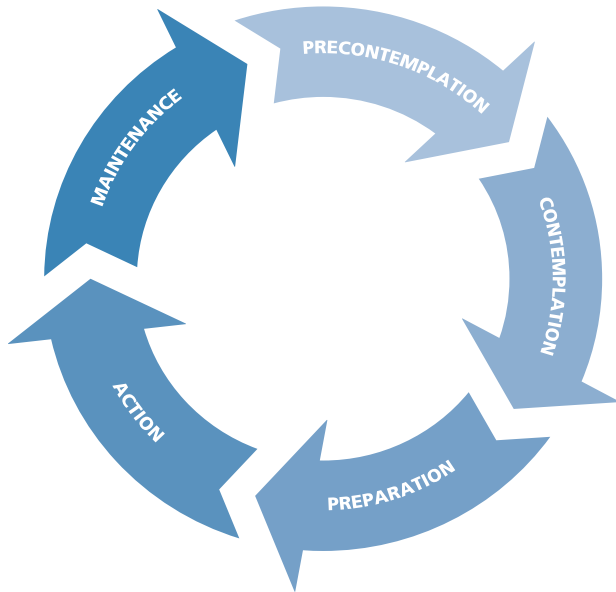
Precontemplation: “I don’t need to exercise, I’m just fine. I move around enough.”

Contemplation: “Exercise can improve my sleep? That’s worth it to me.” After trying and completing a brief exercise routine at home you might think, “it’s not that hard. I wonder if I could do this a few times a week,” and “if I can build up my cognitive reserve by doing exercise, why not?”

Preparation – Action – Maintenance:

The next stages of change are all about making action happen. The preparation stage is where you start making steps toward action. This might include buying exercise bands, enrolling in an exercise class, finding an accountability buddy to go to the gym with, or the critical step of setting goals (see diagram to the right for more). The action stage is all about making that behavior change happen. This is where the rubber meets the road, right? You are exercising! For this phase, the challenge is often getting past starting up the behavior and moving to the maintenance phase, or where you sustain that behavior change over time. To maintain behavioral change, you want to use both internal and external supports.

**DIAGRAM:
TRANSTHEORETICAL MODEL OF CHANGE**



**INTERNAL AND EXTERNAL SUPPORT
FOR BEHAVIOR CHANGE**

What are some of the key internal and external factors that support lasting behavior change? We've been talking about one key factor, motivation. This is that feeling of activation -- the "juice" behind behavior change. Motivation can be both internal, as when you are motivated to achieve a goal for its own sake -- "*I'm motivated to exercise because I want to be a healthy person.*" Motivation can also be external, as when you are motivated by the rewards or consequences attached, not the goal itself -- "*I'm motivated to exercise because I can finally fit into my old clothes comfortably.*" We often use and need both kinds of motivations to help sustain behavior change. Understanding your own motivational levers is key because you need to pull those levers when supporting behavior change. Think about what motivates you, both internally (e.g., *be a good person, be a support to my family*) and externally (e.g., *keep up my cognitive reserve, reduce my risk for heart disease, be able to play with my grandkids*).

These are key factors in supporting the process of change, FOR YOU. Don't forget to pay attention to setting up environmental supports, like scheduling behaviors into your calendar, setting up buddy systems for accountability, giving yourself gold stars or other rewards. These are also important external factors to supporting long-term behavior change.

SMART GOALS

What else supports behavior change? We know from a large body of research that setting goals, especially the right kind of goals, supports behavior change. You may have heard of SMART goals, which is an acronym for the types of goals that tend to be the most effective in increasing motivation, and supporting action stages of change. Specific, Measurable, Achievable, Relevant, and Time-dependent goals are the ingredients for a SMART goal. When we make something specific, that gives us a bullseye on the target. We know when we've achieved it. Measurable means we need to be able to check it off the list. Saying "*more*" is not specific or measurable, and therefore is not achievable. Similarly, we must set achievable goals for ourselves, or we will not gain the important benefits from achieving that goal. A '*reach*' goal is great, but an unreachable goal is just torture. Relevant goals are meaningful to you, not to your providers or to others. If you need to build cognitive reserve, think about a meaningful activity for you, not just a recommended activity that might apply to others but not to you. Maybe it's learning a language of your heritage or being able to play in the backyard with your grandkids. It should be important to you. Time-dependent helps us have a deadline. You can measure your progress toward your goal, and set up a reward system based on that timeline.

Why so much emphasis on achievable goals? SMART goals often help create the necessary conditions for self-efficacy, another critical internal factor that helps support behavior change. Self-efficacy is the “*I can do this!*” factor. When you achieve something, however small, you learn that you can make a change, and that reinforcement creates more motivation and support for change.

Let’s take our initial “*I want to exercise more,*” and change it to a SMART goal. You can see the active ingredients in the following statement: “*This month, I am going to spend 15 minutes, 3x/week doing my strength training routine that I learned from my fitness instructor to improve my strength and mobility on the fitness test.*” Working toward this achievable goal will help you build more of the motivational “*juice*” and “*I can do this*” feelings as you move forward with additional goals.

SUMMARY

Behavior change is a challenge! One that will require you to take stock of your toolbox and prepare for that action phase of change. When you are contemplating behavior change, you want to look at the ingredients that are most helpful to you -- the ones that will activate the internal and external factors that support change. What motivates you? What brings you that “*I can do it!*” experience? What external supports are going to help motivate you on the days when it is just really hard? Answering these questions will help you choose from your toolbox and create a plan for change. Remember that this does not have to be a solo sport, and you can enlist all the teammates you need to help you on the road to change.

2. FOCUS ON YOUR HEALTHCARE

Those who engage actively in their healthcare decision-making have better healthcare outcomes, generally better brain health, lower medical costs, and fewer emergency room visits. They are more likely to stay healthy, have a better understanding of their conditions, manage their conditions better, and comply with their treatment plans. Those who are less engaged are likely to delay care and thus have unmet medical needs. This is also true of engagement in preventative healthcare such as getting regular wellness check-ups, keeping up-to-date with vaccines, and changing health behaviors like eating well and exercising.

Engaging in your healthcare means you (*and your care partner*) work alongside your healthcare providers to take charge of your health: you engage in gathering information and making

decisions about your symptoms, illnesses, and treatment options. You put yourself at the center of your care recognizing your expertise and the contributions you can make in the design and delivery of your care. When you are engaged in making healthcare decisions, you have a better understanding of your health conditions, a stronger commitment to healing, and you will likely experience better outcomes.

BECOME AN ACTIVE MEMBER OF YOUR HEALTHCARE TEAM

To make sure you receive quality healthcare, you (*and your care partner*) must be active participant(s) of your healthcare team.

- Be sure your health care provider understands what matters most to you. As you discuss conditions and explore care options, keep the focus on your personal goals.
- It is important that you understand your medical conditions, illnesses, allergies, past surgeries and family history.
- You should write down all your questions before each visit with a healthcare provider.
- Be sure to bring all your medications to your medical visits including over the counter medications, vitamins, and herbal supplements
- You should ask questions and make sure you understand what is being said to you, leaving your appointment with a clear understanding of your medical condition.
- Take notes or bring another person to your appointments with you if possible.
- If your healthcare provider recommends a treatment, ask about options and make sure you understand the plan.
- Always follow doctors' orders, instructions and call if you do not understand the instructions given.
- If a test is ordered, consult with your healthcare provider about any questions or concerns regarding the procedure. Common concerns and questions may include:
 - use of your medications before the procedure
 - duration of procedure
 - consumption of food or beverages before the procedure
 - care after the procedure



Additionally, you may request a copy of your results, and follow up to discuss your plan of care and any changes that may be necessary.

- If a new prescription is ordered:
 - Let your healthcare provider know if you have any allergies or previous reactions to medications.
 - Ask about medication side effects, what to monitor, and who to call if you experience these side effects.
 - Notify the doctor of any new or worsening symptoms.
 - Talk with your healthcare provider before you stop taking any medications.

MEET THE CHALLENGES OF ENGAGING IN YOUR HEALTHCARE:

MEDICAL JARGON/ TERMINOLOGY	<ul style="list-style-type: none">• Your healthcare provider needs to explain things to you in a way that you can understand.• Don't be afraid to ask questions.• Request educational materials and resources from your provider.
INTERNET/ COMPUTER USE	<ul style="list-style-type: none">• If you have difficulty with electronic portals, request paper copies of your medical records.• If you need help identifying and connecting with local resources, ask for a referral to a social worker.
INFORMATION IS TOO COMPLEX	<ul style="list-style-type: none">• Ask your clinician to put the information in simpler terms to help you understand.• Repeat an instruction back to your clinician to make sure you have understood.• Request a patient advocate or bring a family member who may be able to assist you with challenging information.
I AM NO EXPERT	<ul style="list-style-type: none">• You are an expert on your needs and experiences. And your clinicians want and need your point of view.
WHAT MATTERS MOST?	<ul style="list-style-type: none">• Discuss what matters most to you with your providers. Be confident and respectful when the care plan does not fit your values and /or expectations.

WHAT MATTERS MOST?

WHAT'S THE MATTER?

What is the first question your doctor asks when you seek help for a medical concern? More likely than not, the first question is, *"What's the matter?"* A reasonable question since we typically go to the doctor only when there is a problem. What is often lost when we focus too much on the problem, however, is the patient. In recent years, the importance of asking a different question has come to the fore – *"What matters most to you?"*

WHAT MATTERS TO YOU?

While this sounds like a simple question, people often have difficulty defining this for themselves. Some people may never have heard the question before and others may be uncomfortable talking about such personal things with their health care providers. Additionally, goals and preferences will likely change over time as health status changes. What matters most to someone who is functionally independent and has few health problems will differ from someone with functional disabilities and a heavy disease burden. Learning you have a memory issue complicates things even further as you may experience fear and uncertainty as a result of a new diagnosis.

For patients with a dementia diagnosis, the window of time, when they are able to express themselves clearly, may be limited. That's why it's so important to begin these conversations early and repeat them often. Time is of the essence and we need to start asking and answering the right questions.

Understanding *"What Matters Most"* to you is an ongoing process, requiring time, patience, and a connection between you and your providers. There may be critical moments when it's especially important to understand your goals, but the hope is that when a crisis arises, you've already had these conversations. Prior to having the *"What Matters Most to You"* conversation with your healthcare provider, it will be helpful for you to consider some of these questions:

WHAT QUESTIONS TO CONSIDER

- What is important to you today?
- What makes you most happy?
- What makes life worth living?
- What do you worry about?
- What are some of your goals for the next 6 months?
- What would make tomorrow a great day for you?
- What else would you like us to know about you?

PREPARING FOR THE CONVERSATION

There are some things you can do to prepare for the *"What Matters"* conversation. Reviewing the above questions or exploring information on the internet may be helpful; bringing a family member or friend along for support during these conversations can be comforting and important especially for people coping with memory loss. The goal is to make sure your providers understand what is most important to you so they can incorporate your goals into your care plan.

HOW CAN TECHNOLOGY HELP YOU ENGAGE IN YOUR OWN HEALTHCARE?

When used properly, technology empowers you to have more control over your care. Smart devices can help you monitor blood pressure, blood sugar, heart rhythm, gait, mood, cognition, nutrition, and sleep quality. They can detect problems that may go unnoticed and allow you to intervene at the right time.

A great example of using technology to engage in your healthcare is medication management. Medication management systems can issue reminders, dispense meds, monitor medication usage, and notify caregivers when doses are missed. Some pill reminder technologies and pharmacies can help you remember what pill you need to take and when. Smart speakers like Amazon's Alexa can be programmed to remind you to take your medication at certain times each day.

You can also monitor other aspects of your health over time, allowing you to convey health trends at your in-person health checkups with your clinician. For example, you can monitor

blood pressure at home over several months; or you can use a blood sugar patch rather than daily finger sticks, which can show both the impact of certain foods and provide a timely warning to you and your clinician of worrisome events. Over time, this could allow proactive and personalized medical care interventions.

WHAT SHOULD YOU EXPECT FROM YOUR HEALTHCARE PROVIDER?

To facilitate patient engagement, the clinician and patient must have an open line of communication and should approach the patient-clinician relationship with a collaborative and respectful tone. Your clinicians should be asking you regularly what matters most to you. If collaboration is not happening, ask your clinician to involve you more in the process. You can ask for tools to understand your condition further, how to stay as healthy as possible, and for steps to take if your health should worsen. Engagement with your clinicians and in your healthcare is a key step in pursuing brain health and attaining your goals based on what matters most to you.

3. FEED YOUR BRAIN

Food may not be the first thing that comes to your mind when you think about reducing your risk of dementia or Alzheimer's disease. However, what you eat has an enormous impact not only on your heart health and cancer risk but also on your mood, mental abilities, and risk for developing dementia. Research shows that a plant-based diet that primarily encourages intake of fruits, vegetables, legumes, nuts, and whole grains—with limited amounts of meat—is beneficial for cognitive fitness.

To make things even easier, there is a diet called the MIND diet, developed by Rush University nutritional epidemiologist Martha Clare Morris, Sc.D. and her colleagues that was specifically designed to help prevent cognitive decline and other neurological conditions. The MIND diet combines elements of two existing dietary patterns: the Mediterranean diet, which focuses on eating fruits, vegetables, fish and olive oil; and the DASH (*Dietary Approaches to Stop Hypertension*) diet, which limits sodium/salt intake and helps to reduce high blood pressure. Both the Mediterranean diet and DASH diet include recommendations that help protect against memory/cognitive decline, and the MIND diet (*stands for Mediterranean-DASH Diet Intervention for Neurodegenerative Delay*) combines the two into one convenient dietary pattern to improve brain health.

Research has shown that the MIND diet can help prevent memory loss. In one study of 960 participants with an average age of 81 years, investigators analyzed cognition test scores over 10 years. They found that individuals on the MIND diet scored much better on tests of memory, on average as if they were cognitively 7.5 years younger!

The MIND diet's benefit on memory may even help prevent the risk of developing diseases that involve memory loss. In another study, the same team of researchers studied 923 people between the ages of 58 and 98 years old and showed that even moderate adherence to the MIND diet reduced the risk of Alzheimer's disease by 35%, and high adherence to the diet reduced the risk by 53%. This suggests that even less strict adherence to the MIND diet can still have significant benefits to brain health.

WHAT IS THE MIND DIET?

There are ten brain-healthy foods you should try to eat on a regular basis:

1. **Green leafy vegetables** – aim for six servings a week. These include spinach, kale, collards, Swiss chard, mustard greens, turnip greens, dandelion greens, arugula, endive, grape leaves, and romaine lettuce. The darker the color, the better!
2. **Other vegetables** – aim for at least one serving a day. These include green or red peppers, squash, carrots, broccoli, celery, potatoes, peas or lima beans, tomatoes or tomato sauce, beans, beets, corn, zucchini, summer squash, zucchini, eggplant, coleslaw, or potato salad. Try to have a variety of colorful vegetables.
3. **Nuts** – aim for five servings a week. Try peanuts, almonds, walnuts, cashews, pistachios, or nut butter.
4. **Berries** – aim for two servings a week.

Try blueberries, strawberries, raspberries, or blackberries. When berries are out of season, try frozen – they are just as nutritious!

5. **Beans** – have beans during at least three meals a week. Try black, pinto, cannellini, garbanzo, kidney, and lima beans, lentils, edamame, tofu, hummus, or soybeans.
6. **Whole grains** – aim for three servings a day. You want dark or whole grain bread, brown rice, whole grain pasta, wild rice, quinoa, barley, bulgur, oats, or whole grain cereal.
7. **Fish** – eat at least once a week.
8. **Poultry** – aim for two meals a week.
9. **Olive oil** – choose to cook and prepare foods with this oil, instead of others.

Just as there are foods that promote brain health, there are also foods that are unhealthy. Try to limit these food groups:

1. **Red meats** – limit to four meals a week.
2. **Butter and margarine** – limit to 1 tablespoon a day.
3. **Cheese** – limit to one serving a week.
4. **Pastries and sweets** – limit to five servings a week.
5. **Fried or fast foods** – limit to one time a week.

WHY DOES THE MIND DIET WORK?

We do not know for sure, but we know that these brain-healthy foods contain antioxidant nutrients, like Omega-3 fatty acids, vitamin E, folate, flavonoids (*often found in berries*), and carotenoids (*found in orange/red fruits and vegetables*). These nutrients may help fight inflammation and prevent amyloid deposits in the brain, both of which are thought to be connected to neurodegenerative diseases, like Alzheimer's.

Another key part of the MIND diet is related to fiber intake. Fiber is an important nutrient that we humans don't digest, but some of the "good" bacteria that live in our intestines (*i.e., the gut microbiota*) actually need it to survive. Some of these types of bacteria send signals directly to the brain, which help determine brain health.

SUMMARY

Focusing on healthier eating can have a significant impact on our brain health.

The MIND diet provides flexible guidelines on what types of foods to include in your diet: lots of vegetables, beans, fruits, and whole grains. Antioxidant nutrients and dietary fiber may be the key players that help prevent memory loss and promote brain health. Starting small and using some of the change strategies we learned earlier will help us build these habits of healthy eating. The best part is that the benefits of the MIND diet seem to happen even if you follow the dietary recommendations only most of the time! So, you can still eat your cake...in moderation!

4. ENGAGE IN GOOD SLEEP HABITS

We all know how important sleep is for the brain and overall health. It is a myth that older adults need less sleep than their younger counterparts. All adults need about seven to nine hours, though as we age, we tend to sleep more lightly and in shorter spurts. Your body needs adequate time to sleep to remove waste products and toxins, and be in the best shape possible the next day. Addressing any issues with getting enough rest can have positive repercussions on your health in general, but especially on your cognitive health.

Sleep greatly contributes to our brain's ability to both form new memories and solidify memories we may have already developed. This is known as memory encoding and consolidation. Research has shown that even one poor night's sleep can have a negative effect on our ability to learn new things or remember events and information. While scientists are still working to better understand how sleep enhances cognition, one model proposes that, as we engage in sleep, the same parts of the brain involved in the initial formation of memory is reactivated

(*the hippocampal-cortical network*). This enables the strengthening of cortical connections which eventually allows these memories to become independent of the hippocampus, and enhances our capacity to encode new memories. This process of memory consolidation and refreshing could take place during numerous sleep cycles in one night or across numerous nights of sleep. In addition to helping you form and maintain memories, better sleep helps you to engage in more insightful thinking, enabling you to make better decisions throughout your day.

If you have trouble sleeping, you're not alone. According to the American Sleep Association, about 50-70 million adults in the U.S. have a sleep disorder. Left untreated, sleep deprivation can become a serious problem, especially among older adults. Consequences may include: impaired cognition; depression, anxiety, or other mental illnesses; reliance on substances to get to sleep; increased risk of falls or other accidents; weight gain; impaired immune system; and difficulty with activities of daily living.

Poor sleep is something to discuss with your healthcare provider, as some treatable medical factors can cause sleep problems, including:

- Depression, anxiety, and other mental health problems
- Grief
- Medications
- Pain and medical illnesses such as arthritis, Parkinson's disease, and restless leg syndrome
- Frequent urination
- Substance use
- Dementia
- Living in institutional settings

If you have difficulty sleeping, there is a lot you can do to help achieve better sleep, and give your brain and body the rest and recuperation they need. There are many evidence-based sleep strategies that can promote a healthy sleep cycle. Here are some suggestions to help you get a more restful sleep:

- Avoid daytime napping.
- Get exposure to natural light during the daytime and avoid bright light in the evening as light exposure can alter your circadian rhythm.
- Exercise regularly (*but not within two hours of bedtime*).
- Go to bed and get up at the same time each day to maintain a consistent sleep routine.
- Make sure you associate your bed with sleep and sex only - Do not read, do crossword puzzles, or watch TV in bed. Go to bed only when sleepy.

- Avoid exposure to electronics prior to sleep, including TV.
- Create a comfortable environment: cool room temperature, a comfortable mattress, and limit sounds and light.
- If you tend to get frustrated about the time that has passed while lying awake, turn your clock around.
- No caffeine within six hours of sleep; no alcohol within three hours of sleep; no heavy or spicy meals prior to sleep (*but don't go to bed hungry*); and limit fluids before bed.
- Establish a "worry time". If worries keep you up at night, set an intentional time at some point during the day where you focus on the things you're concerned about – maybe even writing down a to-do list – and when that time is up, set it aside and allow yourself to start your sleep routine.
- Explore meditation techniques and relaxation exercises, such as guided imagery, diaphragmatic breathing, and progressive muscle relaxation. There are apps available to help guide you in relaxation techniques.

Your primary care physician can make recommendations about how to help you get a good night's sleep. If your insomnia is caused by anxiety or depression, it may be helpful to talk to a mental health professional. Getting enough, quality sleep is critical for your brain health, and there is a lot that you and your healthcare team can do to restore good sleep.

5. GET AND STAY ACTIVE!

INCREASING PHYSICAL AND MENTAL EXERCISE

People of all ages feel much better when they are physically, socially, and mentally active, but it's even more important as we grow older. For example, people who sustain an active lifestyle into older adulthood decrease the risk of cardiovascular problems, injuries, obesity, stroke, cancers, type 2 diabetes, depression, and dementia. A meta-analysis has revealed that adults engaging in higher levels of physical activity experience a 38% lower risk of cognitive decline in the subsequent years. Even those who participate in low to moderate physical activity enjoy a substantial 35% reduced risk. These findings underscore the powerful impact of exercise on brain health, likely due to improved blood flow, reduced inflammation, and enhanced neuroplasticity, which supports brain function and memory. Similarly, mental workouts help maintain or even improve functions such as memory, problem-solving, and critical thinking by creating new neural connections and strengthening existing ones. Engaging in cognitive exercises regularly can slow down cognitive decline, and even lower the risk of developing neurodegenerative diseases.

PHYSICAL EXERCISE

Physical exercise can take many forms. When choosing an exercise program, be sure to find a program that you enjoy and suits your specific needs and limitations. The CDC recommends that older adults get at least 150 minutes of moderate intensity aerobic physical activity a week. Additionally, they recommend 2 days a week of muscle strengthening activities that include all the major muscle groups. You can investigate a variety of activities to find the one that works best for you. The National Institute on Aging (*NIA*) has a helpful pamphlet entitled [GET FIT FOR LIFE](#) which discusses the benefits of exercise, how to get started, how to be safe, and how to stay on track.

It's also important to get all four types of exercise: endurance, strength, balance, and flexibility. Endurance activities might include brisk walking, yard work, dancing, swimming, biking, climbing stairs, playing tennis or basketball. Strength training with weights or a resistance band is an important element



to include. Balance and flexibility are also important and could include yoga, tai chi, stretching.

The CDC recommends you make exercise a priority. By making it easy, making it social, and making it fun...you make it happen.

COGNITIVE ENGAGEMENT

Just as exercising your body can impact your overall health and wellbeing, so too can cognitive engagement activities, which significantly improve your quality of life and slow cognitive deterioration. In fact, challenging the brain with new stimuli throughout your lifetime has been proven to improve neuroplasticity (*see the introduction*), which benefits thinking skills, ability to learn, and memory. Doing so also helps to slow down the progression of cognitive decline and neurodegeneration.

Here are some suggestions for simple activities you can do to improve your brain health:

- Learn a new language – try an online app
- Do some math – put your calculator down and use your brain
- Become a puzzler – jigsaw puzzles, crosswords and so much more
- Play an instrument – mixing physicality with remembering and hearing
- Meditate – find a class or go online
- Stimulate your senses. Be mindful in your everyday activities
- Find an app – apps like Brain HQ and Lumosity exercise your memory, attention, brain speed, and more

HOW CAN TECHNOLOGY HELP?

Smart devices are electronics that can connect, share, and interact with users and other devices. They can be used to log your steps, remind you when it is time to start or stop an activity, track key health information (*e.g., pulse, heart rate, blood sugars*), and so much more. Smartphones, tablets,

and other wearable devices have all sorts of tools to engage you physically and mentally through different applications. The website, the Gerontechnologist has an interactive chart of fitness, mobility, and many other apps that have been vetted and recommended for older adult use.

- Most smart devices include a pedometer, an accelerometer, and weather monitoring technology. Using these along with a calendar application, an individual can schedule and get reminders for walks, invite others to the walk, and check their progress/step count. You can also use a music or podcast app for entertainment during your exercise.
- Smart devices could also become a coach to train your cognitive abilities by challenging you to learn something new. You can learn a new language, learn to play the piano, or challenge yourself to pick up a new activity -- like dancing or Tai Chi, via your tablet or online course.

STAYING ACTIVE WITH MOBILITY CHALLENGES

More than 30% of adults over the age of 75 report having serious mobility difficulties, and those that do are also more likely to report disabilities related to hearing, cognition, vision, and living independently. However, research shows that if you increase your amount of physical activity, you can prevent or even reverse disability related to mobility difficulties. If you have mobility challenges or need assistive devices to walk steadily, you can still be physically active. If you prepare and stay aware, you can continue to enjoy being out and about even during cold and rainy weather.

Here are some tips to optimize your balance when you are out walking.

- Be aware that weather conditions such as snow, rain, wind, and cold are distracting and can affect balance control.
- Have both hands free to improve reactions that help you maintain balance. Wear a cross-shoulder bag, backpack, or fanny pack, if needed.
- Make sure your bag or pocketbook is not too heavy.
- Use the correct assistive device prescribed for use in an outdoor environment.
- Make sure the tips of your cane or walker are in good condition. Replace them if they're not.

Specifically, in inclement or wintery weather:

- Wear low-heeled shoes with rubber traction.
- Use caution with winter boots as they can be heavy and may restrict clearing your toes.
- Consider using traction devices on shoes, which can decrease falls on icy surfaces.
- Make sure you keep pathways clear of ice and snow in front of your home.
- Assistive devices, especially walker wheels and canes can often become covered by salt and slush and can make your floors slippery. Have a towel or rug available to wipe them off.
- Poorly lit areas increase fall risk. Travel in well-lit areas or use a flashlight.

Exercising is important, but we must keep in mind that falls can set back your progress or cause serious injuries. More than 1 in 4 older adults report falling each year, but falls are not a normal part of aging—they can be prevented.

- Tell your doctor if you have fallen, if you feel unsteady when standing or walking, or if you are afraid you might fall.
- Ask your doctor or pharmacist to review the medicines you take. Some medicines might make you dizzy or sleepy which can increase your risk of falling.
- Have your eyes checked at least once a year and update your eyeglasses as needed.
- Have your doctor check your feet at least once a year and discuss proper footwear to reduce your risk of falling.
- Ask your doctor about health conditions like depression, osteoporosis, or hypotension that can increase your risk for falling.
- Do exercises that make your legs stronger and improve your balance, like Tai Chi.
- Get rid of trip hazards like throw rugs, and keep floors clutter free.
- Brighten your home with extra lighting or brighter light bulbs.
- Install grab bars in the bathroom(s)—next to the toilet and inside and outside of your bathtub or shower.
- Install handrails on both sides of staircases.



SUMMARY

As long as you plan ahead and stay aware of your environment and physical safety, the only thing that can hold you back from exercising is you! Having an active lifestyle has many benefits for your physical, cognitive, and brain health, in addition to helping improve your mood and wellbeing. It can help reduce risk of disease co-morbidities, or even improve them in some cases. Technology can be a very useful tool in exercise, just as much as a yoga mat or a set of weights. It can help you find exercises that are adequate for you and even fun to do. Technology can be your coach or help you track your own progress, and even be a helpful tool to show your doctor or physical therapist what you've been up to.

While physical exercise is extremely important to your overall health and wellbeing, cognitive exercise is also essential to staying sharp or even improving your cognition. Technology can also help by recommending activities to help entertain and challenge your mind. Remember to keep (safely) challenging yourself with exercise both physically and cognitively, and take control of your mobility, fitness, and cognition!

6. INVEST IN SOCIAL CONNECTION

People do not always think of their social life as a key part of their overall health, but it is. One study on the impact of having strong social ties found the lack of strong social connectivity had the same health risk as smoking 15 cigarettes a day. In fact, studies have found that strong social ties have a buffering effect on cognitive decline, and can decrease your risk of developing dementia, showing that social connection is a critical ingredient in brain health.

Loneliness, which is a subjective feeling of being alone or lacking connection, is a threat to brain health. Even in a crowd, one can feel lonely. It's not just any social connection that matters, but strong social connections that help reduce the likelihood of loneliness and increase our brain health potential. One key component is QUALITY over QUANTITY. Yes, having more than one friend is helpful, yet having more or the most friends is not necessarily helpful. A poor relationship that is full of conflict, ambivalence, and is emotionally draining will not be helpful. Relationships that are mutually fulfilling, low in conflict, and easy to access will benefit you greatly.

SOCIAL CONNECTION IN LATER ADULTHOOD

It turns out that older adults are particularly good at making quality social connections. Researchers have labeled this phenomenon social expertise, which is a type of social wisdom that accumulates over time, and helps older adults build robust social networks. This social expertise is demonstrated by skills like avoiding conflictual relationships and being able to focus more on positive social experiences. There are several risk factors that can increase loneliness in older adulthood. For instance, retirement can be difficult for some individuals whose social networks relied on friendships built at and around work. Widowhood is a common and challenging experience that can fragment a strong social network, especially if your deceased partner was the social chair in your household. In this case, you've not only lost your partner and are experiencing grief, you've also lost the connector who helped you to stay socially active.

BUILD STRONG SOCIAL CONNECTIONS

So how can you build a stronger social network? One strategy is to use a variety of methods to connect including video calls, chatting/texting with adult children and grandchildren, connecting with old friends on social media or other modalities, in-person visits with friends and family, or joining a group that focuses on an activity you enjoy. Connecting across generations, especially outside the family, can help build strong social connections. You may become an intergenerational volunteer through programs like Encore.org, or become a volunteer tutor for younger children. Myriad opportunities are available through churches, schools, or community centers. Fostering meaningful social connections is a key ingredient to optimizing brain health. It is important to be aware of your own social health and to create goals to help maintain and grow your social connectivity throughout later life.

7. FOCUS ON YOUR MENTAL WELLNESS

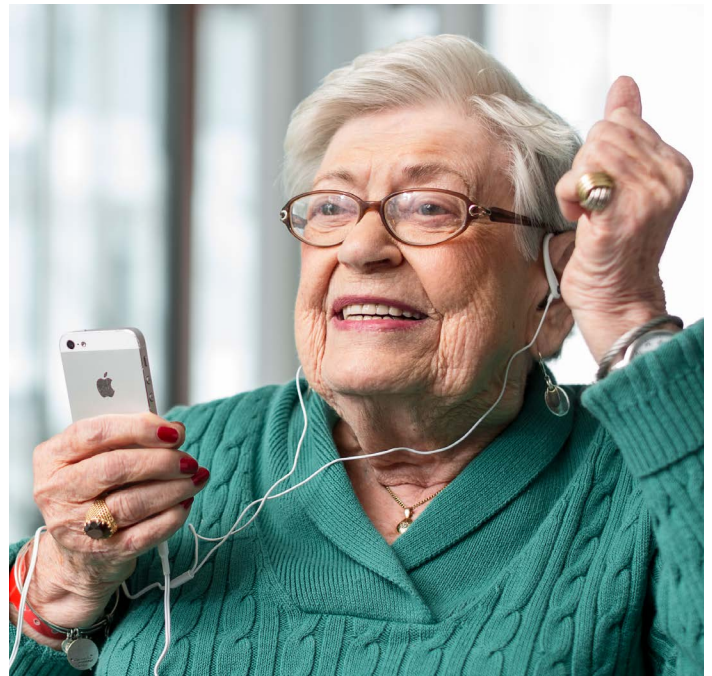
MANAGING STRESS AND WORRY

Stress is a normal, albeit pesky, part of our everyday lives. It can be acute or chronic, mild or severe. Stress is also an important aspect of our survival; also known as the “fight or flight response”. Without some stress alerting us to possible dangers, we could engage in harmful or risky behaviors, like crossing the street without looking. When stress becomes too prevalent in our lives, it can negatively affect our emotional and physical wellbeing. Stress has been linked to a number of health problems (e.g., substance use, headaches, insomnia, anxiety, and depression). This is particularly true for people with certain preexisting vulnerabilities, including cognitive deficits. A chronically stressed brain can affect many bodily systems, including your metabolic, cardiovascular and immune systems, and even “rewire” the brain to focus more on survival than on higher-order cognitive functions.

The relationship between stress and cognition seems to be bidirectional: chronic stress can put strain on cognitive functioning, and experiencing a decline in one’s cognition can contribute to stress. If reading about these risk factors alone is contributing to your stress levels, rest assured! There are many evidence-based strategies to reduce stress and regain control of your brain health. Below are some examples that you can try at home:

EVIDENCE-BASED RELAXATION STRATEGIES

- **Use Your Five Senses**
 - When coming up with a relaxation strategy to try, consider using each of your five senses. Practice being mindful as you experience each, paying attention to how it feels, staying in the moment, and refraining from judgement.
 - Examples include:
 - **Smell** - aromatherapy, scented lotions for hand massage, smelling fresh flowers
 - **Touch** - squeezing a stress ball, massage
 - **Taste** - savoring a favorite flavor like dark chocolate (*also linked to brain health!*)
 - **Sound** - listening to your favorite music, hearing birds chirp
 - **Sight** - watching the waves at the beach, viewing a sunrise



- **Get Moving**

- Exercise is an important component of stress relief and brain health
- If you are new to exercise, start slowly:
 - Try a walk in your neighborhood
 - Practice yoga (*even chair yoga, which is helpful for folks who need more physical support*)
 - Practice Tai Chi (*a form of martial arts that is akin to meditation*)
- Exercise with a friend or loved one for an added social component, which can also bolster mood

- **Orgasms**

- Believe it or not, having a satisfying sexual encounter, whether alone or with a consensual partner, can release feel-good hormones that promote relaxation and relieve stress. They can even improve sleep!

- **Diaphragmatic Breathing**

- Close your eyes and get into a comfortable seated position
- Place one hand on your chest and one hand on your belly, just below your ribcage
- Breathe naturally and notice: *which hand is moving the most?*
 - When we are stressed, our breathing tends to be quicker and shallower. You may notice the hand on your chest moving the most.
 - When we are relaxed, our breathing tends to be deeper and slower. Our goal is to make the hand on our bellies rise and fall as we sink into relaxation.
- Practice taking deep breaths through your nose. Imagine the breath traveling down deep into your belly, expanding it like a balloon, slowly.
- Then, slowly, release the breath through your mouth.
 - Try pursing your lips, as though you are breathing through a straw, to slow down your exhale.

- Simply notice your thoughts and bring them back to your breathing. If you notice your mind wandering, do not judge yourself!
 - Try counting the seconds of each inhale and exhale if it keeps your attention on your breathing.
- Repeat for a few minutes per day to promote relaxation.

- **Imagery**

- Close your eyes and get into a comfortable seated position.
- Begin by mentally conjuring a peaceful, pleasant scene. It may be based on a real-life experience you've had, or you can use your imagination.
- Imagine using each of your five senses while in this imagined scene: What would it feel like walking around there? What would I smell? What are the beautiful sights around me?
- Remember to breathe slowly and deeply while practicing imagery.

- **Progressive Muscle Relaxation**

- This is the practice of mindfully alternating between clenching muscle groups in the body and then releasing them, with a goal of noticing the difference between a tense state and a relaxed state.
- There are many examples on YouTube for guided relaxation practice. This one was made by a physician at Boston Medical Center: <https://www.youtube.com/watch?v=TQ9kTYOwtks>

YOUR MOOD AND YOUR BRAIN

Depression is a mood disorder that affects the way you think, feel, and act. It can also impact your personal relationships. Symptoms can be mild to severe, and cause feelings of sadness and a loss of interest in activities that you once enjoyed.

However, depression goes beyond just feeling sad. Other symptoms can include:

- Changes in appetite or weight – either loss or gain – that are unrelated to intentional dieting
- Trouble sleeping or sleeping too much
- Loss of energy
- Restlessness, or an inability to sit still
- Feeling worthless or guilty
- Difficulty thinking, concentrating, or making decisions
- Thoughts of suicide

Compared with other age groups, older adults with untreated depression are more likely to experience more episodes of fatigue, bigger fluctuations in appetite and sleep, and difficulty with cognitive functioning. There is a relationship between depression and cognitive decline. When diagnosing dementia, one of the conditions to rule out is depression. Both can have similar symptoms, like social isolation, difficulty with memory or concentration, and a lack of interest in activities that you once enjoyed. When confusion and other symptoms are caused by depression, they generally improve with treatment. More research is being done about the links between depression and dementia and whether an older adult with depression is more likely to develop dementia.

For a person who does have dementia, depression can be common, especially during the early and middle stages. It's estimated that up to 40 percent of people with Alzheimer's disease suffer from significant depression. Treating the depression is key to maximizing quality of life and enhancing the cognitive abilities that remain. With the right treatment plan and support, you can continue to enjoy the people and activities that matter to you.

Treating depression in older adulthood usually requires a combination of interventions, and some trial and error to determine the best combination to suit your unique needs. Regardless of the treatment, you are an active agent in your own mental wellness goals. Options include:

- Counseling sessions with a licensed mental health therapist, psychologist, or social worker: Short- or long-term counseling can help you understand what triggers your depression, and provide you with tools for adapting your behavior, adjusting to a crisis or change in life circumstances, and setting realistic goals to focus on the parts of your life that bring joy.
- Lifestyle changes, including regular exercise, adequate and consistent sleep, avoiding alcohol, and proper nutrition can improve your mood. Research has proven that exercise can be quite effective in reducing the symptoms of depression, particularly for those with mild depression.
- Medications, which work to replace chemicals that are normally produced by your brain and can help with regulating mood. All antidepressant medications can cause side effects, ranging from mild to severe. It may take some time to find the right medication and dosage to relieve your symptoms while minimizing side effects.
- Non-invasive brain stimulation, or transcranial magnetic stimulation (*TMS*), is a newer treatment that has shown great promise in improving treatment-resistant depression. The Wolk Center for Memory Health is home to New England's only TMS clinic specializing in the treatment of geriatric depression.



SPIRITUALITY AND MEANING

Spirituality is not just for those who identify as religious. Whether you identify as Jewish, Muslim, Christian, Atheist, Agnostic, or anything else, everyone wants their lives to have a sense of purpose, meaning, and connection. This is what we define as “spirituality”. For some, that comes from their religion, for others, their sense of purpose and meaning might be their family, pets, nature, or even a hobby they love. People who feel their religious or spiritual needs are not met are at a higher risk for depression, anxiety, greater physical pain, decreased emotional well-being, and a lower overall quality of life. People who have a higher degree of spirituality, however, have slower rates of cognitive decline.

A sense of purpose, meaning, spiritual connection, and hope can be a source of immense comfort, especially if you’re navigating new challenges in your cognition or in the aftermath of a new diagnosis. Spirituality can be expressed through beliefs, practices, values, and traditions that foster connectedness to the moment, self, others, nature, and a sacred/higher power. There are many ways to foster spirituality and a sense of meaning.

- Participate in individual or group religious rituals and practices (*such as prayer, listening to religious songs, reading religious texts, attending religious services, etc.*).
- Participating in hobbies, interacting socially with others, expressing yourself artistically, listening to your preferred music, and enjoying holiday celebrations.
- Speaking with a chaplain about your spiritual history and needs.
- Spending time outdoors or going for a walk outside if you are able.
- Participate in mindfulness or meditation practices (*which has been shown specifically to improve cognitive reserve after just one session!*).

8. PLAN FOR YOUR FUTURE

As a person advances through the different stages of life, their physical, psychological, social, and spiritual needs change. If cognitive decline and/or dementia develops, your needs may change even more drastically thus requiring an approach and treatment plan that addresses all aspects of your life.

Palliative care is specialized medical care that anticipates the natural trajectory of a disease and helps you put together a roadmap that can be used to navigate your healthcare in the future. The goal is to foster a holistic approach that addresses the different aspects of a person's well-being: physical, practical, emotional, and spiritual. It is suitable for any age and at every stage of a disease.

When it comes to dementia, the focus of the palliative care specialist is on providing the patient and their family with easily digestible information about their illness and its natural trajectory. Palliative care specialists can help patients and families navigate difficult conversations and decisions that come along with illness, reviewing the pros and cons of different treatment options, and discussing the possible trajectory each course of action might take in the future.

Importantly, this process identifies the patient's own values, goals, and priorities. When accessed early enough, palliative care discussions provide an opportunity for patients with dementia to maintain some control and offer a guide for their families and medical providers to follow in the future. Our goal is to ensure as much as possible a patient-centered plan of medical care based on what matters most to the patient.

As dementia progresses through moderate to severe stages, palliative care also focuses on providing relief from symptoms such as pain. The palliative care team connects patients and caregivers with appropriate resources while collaborating with the rest of a patient's care team to help coordinate among different providers.

MAKE A PLAN

Dealing with cognitive loss can be incredibly stressful. You may be faced with unfamiliar terms and medical data that can easily become overwhelming. Understanding the causes of the dementia can be confusing as there are often multiple factors. Sometimes different specialists might advocate for conflicting courses of treatment -- a reflection of our fragmented system of medical care. Our goal is to help patients and families understand the nuances of the issues at hand, break down the options, and weigh the benefits and drawbacks of each option. From there, we can customize the overall

treatment plan by incorporating the goals and values of the patient and family.

Coping with dementia can bring up a wide range of emotions in the patient and their loved ones. Emotional conversations are challenging, but are necessary to anticipate the many decisions that will need to be made over the course of any illness. Bringing patients and families together to have these difficult conversations is essential as we strive to respect patients' wishes when they are no longer able to make their own decisions.

Bringing patients and families together and aligning their goals is not always easy. Adult children may sometimes have preconceived notions of the “right” way forward that might clash with their parent’s treatment goals and what matters most to them. Adult children will appreciate being part of these conversations and receiving this critical guidance as soon as possible.

Discussions at the early stages can also center on thinking ahead about how your loved one’s living situation might need to change as the disease progresses. This is another topic that can bring up difficult emotions. Plans can be arranged to add [care at home](#), or you and your loved one could begin to visit [assisted living](#) or [long-term care](#) environments to see what they’re like and begin to create some options.

SUMMARY

We know that people want what is best for their loved one with dementia. As difficult as this process may be, ensuring that consequential medical decisions are made according to what matters most to the patient helps eliminate any second-guessing, and alleviates any guilt of having made the “wrong” decision.

With palliative care, we meet with patients and families to take a holistic view of their cognitive loss, to understand how the disease impacts all areas of their life, and to suggest medical and non-medical ways to cope. We also help patients and families think through their goals of care, and align treatment plans accordingly. We provide answers to patients and their families, as well as hope and personalized interventions to minimize disability and maximize quality of life at every stage of the disease.

9. ENGAGE IN RESEARCH

Participating in brain health research is a valuable way to contribute both to the world around you and the scientific endeavors you care about, while also enhancing your understanding of your health and your sense of purpose. No matter which medical conditions you may be facing, there are research studies you could be involved in -- whether they are from the comfort of your own home, or involve a trip to a medical facility, such as Hebrew SeniorLife and the Hinda and Arthur Marcus Institute for Aging Research.

There are many benefits to engaging in research. Some key positives can include:

- Enhancing knowledge about your own health and well-being
- Accessing cutting-edge treatment interventions
- Contributing valuable information that can help others in the future
- Achieving a greater sense of purpose by contributing to the science of aging or a particular disease you are interested in or facing
- Expanding your knowledge and understanding of a field of study

If you are interested in participating in research, seek out the opportunities that best fit your goals. During the informational, screening, and informed consent process, you will learn about the time commitment, and what you will be asked to do. Importantly, you will be fully informed of any risks and potential benefits prior to any involvement in a study. As participating in research is completely voluntary, you can opt out at any time.

There are many different types of research studies and levels of involvement from which to choose. Some studies may only involve the completion of a few questionnaires at a single point in time, while others could require daily passive or active involvement over a period of weeks, months, or years. In some studies, for example, you could be asked to wear a fitness tracking device, such as a FitBit or activity monitor. Other research studies could involve meeting by video call or in-person on a particular schedule.

Different research studies can have a variety of goals and can look at different treatment options. Some studies look into the past in order to learn more about future beneficial treatments, while others are studying new medications to test their dosage, safety, and efficacy. Many studies

explore the effects of improving your lifestyle, such as increasing exercise or improving your diet; and even more look into small procedures or devices that can improve daily life or symptoms of a specific disease. It is essential to not only look at the time commitment of a study, but also the goal of the study to see if it's a good fit for you. Ask yourself if this is the kind of contribution you are looking to make for the advancement of knowledge, treatments, and improvements in brain health.

Importantly, you do not need to have been diagnosed with an impairment or specific disease to participate in research on brain health. Research teams are always in need of healthy participants to contribute as well. Even family members and caregivers of those with brain health challenges can get involved in research.

If you are interested in getting involved in research as a participant, there are numerous resources available to help you navigate the process.

- Clinicaltrials.gov
 - <https://clinicaltrials.gov/>
- National Institute on Aging (NIA)
 - <https://www.nia.nih.gov/research/clinical-trials#public>
- Marcus Institute for Aging Research (*at Hebrew SeniorLife*)
 - Call 617-971-5300 or reach out via the website: <https://www.marcusinstituteforaging.org>
 - For a list of current research study opportunities, visit:
 - <https://www.marcusinstituteforaging.org/current-studies>

If you need assistance finding a research study that is a good fit for you, you can also contact the National Institute on Aging by phone at 1-800-438-4380. Researchers are waiting to partner with YOU to help improve brain health for everyone!

II. CAREGIVERS AND FAMILIES

FAMILY CAREGIVERS

Dementia care often begins at home with family members assuming the responsibility of caring for their loved ones. In the United States, an army of 16 million caregivers contribute 18.6 billion unpaid hours of care each year. Family caregivers take on their roles for many reasons. They may prefer to have care at home as long as possible, but many cannot afford expensive home care services needed to keep a loved one at home. Family caregivers are represented in every geographical region, personal background, and cultural group.

WHAT DOES CAREGIVING FOR SOMEONE WITH DEMENTIA INVOLVE?

In addition to working and taking care of their own needs, caregivers are likely to be engaging in additional household work, helping their loved one with activities of daily living (e.g., driving, moving around, dressing, bathing, feeding, toileting), providing emotional support, and coordinating medical care.

Becoming a family caregiver may require learning new skills and/or enhancing existing ones. For example, many people have never had the experience of bathing another person. Navigating the large and often intimidating health care system becomes overwhelming when caring for someone with dementia.

THE CHALLENGES OF FAMILY CAREGIVING

Family caregiving can be very challenging as individuals must change their lives dramatically and take on many new tasks, all while managing their own health and personal concerns. Research has shown that family caregiving can be associated with poorer physical health, mental health, and higher stress overall for the caregiver. This can also translate into poorer brain health, as the overall health and wellness of the caregiver is challenged by high levels of stress associated with the demands of caregiving. The good news is that with specific skills, resources, and quality treatment, caregiver wellness can often be restored.



Negative outcomes like emotional distress and poor health are often influenced by how stressful the caregiver perceives their situation to be. Fortunately, perception and outlook are something that can change with time and specific interventions, like mindfulness techniques or cognitive behavioral therapy. It's important to identify sources of stress to cope with triggers and prevent burnout. By watching for signs of stress, you can proactively address those challenges with different stress-relieving methods.

Despite the very real potential for additional stress that the burden of increased caregiving can create, it is also an opportunity for personal growth, building new strengths and skills, and resilience. In addition, as we know from research, having meaningful relationships, experiences, and a sense of purpose is a buffer for your brain health.

ALZHEIMER'S AND DEMENTIA RESOURCES FOR FAMILY CAREGIVERS

You may need additional help with new tasks of caregiving, and not everyone is comfortable asking for help or knows where to go to get help. Here are a few places to start:

- The Wolk Center for Memory Health, as part of the Memory Wellness for Life program, offers family caregiver support and skill-building via individual, family, and group therapy.
- Caregiving tasks will change in frequency and intensity as the disease progresses. Planning for the future is a key aspect of family caregiving. We recommend talking with providers about your loved one's future care as well as your own.
- Support groups offer a safe environment to process complex emotions around caregiving, learn from others, and find community.
- Massachusetts Family Caregiver Support Program is a state-run program that offers several different services, online education, and real-time support for caregivers of older adults. Their regional caregiver specialists are available by phone to answer questions and help find appropriate resources at 800-243-4636.
- Technology such as smart phone applications can also be of help, both to monitor your own health (*e.g., sleep, nutrition, medication management, activity levels*), but also assist with the tasks of caregiving that may reduce the stress of daily caregiving activities. For example, you could use sensor systems on your door, mailbox, etc. to monitor wandering behavior, which automatically alerts you if someone opens the door or walks past the mailbox. Personal Emergency Response Systems (*PERS*) are now included in wearables devices like the Apple Watch. A PERS has a call function to the network of in-home sensors that monitor movement, activity, and other vital signs and reports that data in real-time to caregivers, family members, and emergency responders.

One of the challenges of caring for a loved one with dementia is piecing together different resources from different providers and organizations. At the Wolk Center for Memory Health at Hebrew SeniorLife, our focus is not just on offering care to our patients but offering support to families and care partners as well. By providing all this care under one roof with one set of experts, we can help you navigate everything you need to maximize your quality of life.

WORK WITH A SOCIAL WORKER

A geriatric social worker can help you and your family in myriad ways when dealing with a cognitive concern. In addition to providing counseling to both patients and families, a social worker can help you develop a plan for care and provide you with critical information about community support and resources. These resources are invaluable as you and your family move forward. In addition to researching and sharing community resource information such as local senior centers, adult day health programs, respite services, support groups, a social worker can facilitate conversations with patients and families regarding care needs and expectations. They can guide discussions about bringing help into the home, or what supportive living arrangements may be available or appropriate. Is your loved one able to be safe at home, but in need of some assistance with daily tasks like bathing, dressing, light meal prep, grocery shopping, taking medications, and picking up prescriptions? If that's the case, then private care in the home may be a good option.

However, it's likely there will come a time when it is no longer safe for your loved one to remain at home, and you may need help developing a plan for care when that happens. This is another situation in which working with a geriatric social worker can be beneficial, as they can facilitate discussions about the potential for eventual long-term care placements. Ultimately, both current and future health care needs should be considered when making a long-term plan, and contingencies typically should be prepared as well. It's far better to plan ahead to avoid a crisis situation which may result in a less-than-ideal consequence.

Health and safety concerns are typically the primary reason families explore long-term care options. Repeated hospitalizations, frequent falls, impaired cognitive function, incontinence, and safety concerns around appliances are some of the many factors that might indicate a loved one is no longer safe to continue living independently.

A geriatric social worker can explain how your loved one's financial situation may influence your next steps. A social worker can help make an initial assessment of what funds are available for private in-home care, and can help assess if your loved one is eligible for

Medicaid/MassHealth or other assistance, and how applying should be considered when making a care plan.

As a care partner, getting connected with community resources is an invaluable part of your journey, but you must also prioritize your own emotional well-being. A geriatric social worker can provide you with much-needed mental health services such as supportive counseling. It has been well documented that, not only do care partners benefit from this sort of counseling, patients benefit greatly as well when the care partners are supported appropriately.

Receiving a dementia diagnosis is challenging. There is a lot to learn and a lot to deal with. A geriatric social worker can not only help you navigate practical resources, but also help with difficult family conversations, foster better communication, and be a sounding board for people with dementia who want to process their emotions in a safe space.

HIRE A GERIATRIC CARE MANAGER

Our lives are busier than ever with responsibilities of work, raising a family, and all the things we should be doing to take care of ourselves and our loved ones.

In the past, extended families often shared the job of tending to older loved ones. These days, with families living farther apart, the responsibility for care can fall on one overwhelmed family member. For families with the resources to do so, hiring a geriatric care manager can be a life saver. Geriatric Care Managers are often licensed nurses or social workers who are trained in caring for older adults. They act as privately paid advocates and guides for family members who need help finding their way through the labyrinth of elder care. They can accompany patients on appointments, hire caregivers or home health aides, act as a liaison to family members, arrange for respite care, explain complex topics, explore social services and programs, and more.

Keep in mind that anyone can represent oneself as a care manager without having the proper qualifications, so check carefully. You can speak to your memory care professionals for referrals, or conduct an on-line search.

- [Aging Life Care Association expert search](#)
- [Eldercare Locator support services](#)
(enter your location information to find the nearest Area Agency on Aging — they often have lists of local providers)



III. GETTING A BRAIN CHECK-UP

Just as we emphasize a preventative approach to heart health and cancer, we should use the same approach for brain health. It's logical—a no brainer, if you will—that catching a disease at an early stage is better than waiting until a later stage, and there are some particular reasons with regard to dementia. Dementia generally starts as mild cognitive impairment (*MCI*). Remember, *MCI* is defined as a measurable decline in at least one cognitive area—most often memory—that goes beyond the effects of normal aging. A person with *MCI* is still able to perform activities of daily living, including basic ones such as eating, dressing, and bathing, as well as more complex activities, such as driving, cooking, cleaning, and managing finances. However, with dementia, the ability to remember, think, or make decisions is so impaired that it interferes with everyday activities. Delaying and ideally preventing the progression of *MCI* to dementia is an effective intervention, but it requires a timely diagnosis.

Something essential to your cognitive health as you age is what we call a Brain Health Check Up. Just as we have screenings for cancer and other diseases, we need to do the same for the brain and catch problems such as stroke, Parkinson's, and dementia before they develop. If we wait until you start having problems, the consequences are much harder to treat, so we suggest that you be proactive in your brain health instead of reactive and get checked out at a memory clinic.

WHAT TO EXPECT AT A MEMORY CLINIC

A memory clinic is a place where people with any stage of memory loss can go to be evaluated and receive care and support. Memory clinics are equipped to treat memory disorders ranging from mild cognitive impairment to Alzheimer's disease and other forms of dementia, frontotemporal disorders, and more. Memory disorders do not exist in a vacuum. That makes a multidisciplinary and personalized approach essential if patients are to receive the best possible level of care. Even so, people who receive a dementia diagnosis are sometimes left wanting more when it comes to their care. A report summarizing a series of discussions featuring people living with dementia and caregivers found that they are most in search of an individualized and tailored approach to post-diagnostic guidance and care. While every memory clinic is different, a multidisciplinary health care team that provides comprehensive care and support for not just patients, but their caregivers and families as well, is essential for the best quality care. Some specialists could

include a neurologist, nurse practitioner, psychiatrist, psychologist, social worker, neuropsychologist, and geriatric palliative care specialist.

Following your initial visit, the memory clinic may want to gather more information about you. If diagnostic clarity is your goal, next steps may include a neuropsychological evaluation, referral for brain imaging like an MRI or PET scan, and an appointment with the neurologist, as well as visits with any of the other specialists as deemed necessary. If care and advanced care planning is the goal, appointments with a geriatric palliative care specialist and other supportive care providers may be most appropriate. Ultimately, your treatment will depend on your individual circumstances and goals. The focus will always be on providing the information you and your family need to make informed decisions about your care, and supporting you and your family along this journey.

NEUROPSYCHOLOGY

It's natural to feel intimidated or overwhelmed if you or a loved one has been referred for a neuropsychological evaluation, but we encourage you to look at neuropsychological testing as a way to be empowered with information about how your brain is functioning. This evaluation looks at the brain's behavioral output and tells you how cognitive and emotional functioning may be diminished by brain structural abnormalities, what consequences these brain changes have on daily life, and what could potentially be modified through actionable recommendations.

Neuropsychological evaluations may be recommended for various reasons, including clarifying behavior; aiding in diagnosis; helping with disease management, care, and planning; evaluating the efficacy of a therapeutic strategy; evaluating one's capacity to make decisions; or conducting research. This evaluation can provide you and your doctor with a good cognitive baseline that can be used for comparison in the future -- to see if new medications or other treatments positively affected your cognition. Also, a neuropsychological evaluation can identify which cognitive abilities are weaker and should be the focus of rehabilitation, environmental modifications, or behavioral strategies. At the same time, you can identify which strengths you can use to your advantage to compensate for weaknesses. Knowing this can help you prioritize decisions about your day-to-day life based on what's most important to you.

A neuropsychological evaluation involves the thorough study of behavior through interviews and standardized tests, along with questionnaires that provide precise and sensitive indices of the most sophisticated components of functioning:

- Attention
- Perception
- Learning and memory
- Communication and language
- Constructing and drawing
- Reasoning
- Problem-solving
- Judgment
- Planning
- Emotional processing

A neuropsychological evaluation is composed of a clinical interview where a trained neuropsychologist will ask about your background, education, social history, medical history, and the specific difficulties you're experiencing. Next will be the neuropsychology testing which involves administering, scoring, and interpreting formal tests of thinking and memory abilities. Finally, there will be a feedback session with the doctor to review the findings, share impressions, and make specific recommendations.

We don't use the same exact tests for everyone; we suit them to what is best for you and we make accommodations if needed. For instance, if you have difficulty hearing or are experiencing a tremor that prevents you from using a pencil, we make adjustments to the testing. Testing is tailored to every individual, what they need, and what cognitive domains require more attention. Most patients worry that they may fail a test. This is not possible because these tests aren't pass/fail. There is no requirement to study or sharpen any skills because the assessments aim to gauge your present strengths and challenges.

MEDICAL/NEUROLOGICAL

As with any health issue, you want to visit a specialist that is an expert and can help you develop a care plan and improve your quality of life. To help clarify a diagnosis, the person you want to see is a neurologist. Following any initial diagnostic assessments (*such as a neuropsychological evaluation, MRI scan, or nurse practitioner visit*), you will meet with a neurologist, who will review with you the information that has been gathered. In consultation with your medical team and considering your goals of care, a treatment plan will be established. While the specialists will make recommendations about a path forward, it will ultimately be up to you to determine how you will proceed through the assessment process and beyond.

Medical advancements in treating and diagnosing cognitive loss are ongoing, improving the potential for easier and earlier diagnosis, and more effective treatments to meet the growing demand. The earlier a patient seeks clarity for a cognitive loss, the sooner they can start treatment, including reduction of the risk factors that promote the progression of disability. To optimize response to treatment, a number of things are essential:

- Personalize the interventions – treat the person who has the disease, not just the disease.
- Consider the needs of caregivers and loved ones – treat not just the patient, but also the family.
- Empower the patient to plan their future and offer continuing support, in essence accompanying the patient and their family on their journey.
- Identify the underlying disease causing the symptoms and disability of cognitive loss to ensure the use of appropriate, specific treatments.



Additionally, a medical investigation into cognitive health can reveal conditions that mimic early signs of cognitive decline such as reactions to drugs, depression, vitamin B12 deficiency, thyroid disease, and alcoholism. Addressing those issues can improve cognitive function. Sleep disruption is particularly important to consider in this context. Obstructive sleep apnea, a common condition associated with snoring and frequent awakenings during the night, is often under-diagnosed and thus not treated, yet it can not only be the cause of memory problems, it can also increase the risk of dementia and the severity of the resulting disability.

Current testing methods to guide a specific memory loss diagnosis include comprehensive clinical assessment, such as neuropsychological evaluation; advanced diagnostic imaging testing (*such as MRI, DAT scan, PET scan*); and biomarker confirmation through the ratio of amyloid beta ($A\beta$) and tau proteins in cerebral-spinal fluid. All of the above can provide insight into the development of the disease and enable differential diagnoses between Alzheimer's and other neurodegenerative diseases, opening the way for appropriate personalized therapeutic interventions. An interdisciplinary team, including neurology, geriatrics, psychiatry, neuropsychology, and nursing, is often needed in this process. Identifying the specific cause of cognitive difficulties -- as well as considering the patient's overall circumstances, lifestyle and goals, are critical to providing the patient and their family an accurate understanding of how their diagnosis will affect them, plus which therapies are best suited. Once a diagnosis of dementia is established, the type of dementia may determine which medications are appropriate, how the disease will play out,

how fast the disease will progress, and which functional abilities will be impacted first. These considerations are all critical to families looking to plan for the future. Delaying and ideally preventing the progression of MCI to dementia is an effective intervention, but it requires a timely diagnosis. Delaying decline in cognitive abilities or daily functioning results in more days of meaningful life that people can enjoy with loved ones.

V. RESOURCES

GENERAL RESOURCES

ORGANIZATION NAME	OVERVIEW	PHONE # / EMAIL	WEBSITE / LINKS
Alzheimer’s Association	The leading voluntary health organization in Alzheimer’s care, support and research working globally, nationally and locally to provide care and support for all those affected by Alzheimer’s Disease and related dementias.	PHONE: 800-272-3900 24 Hour Helpline	www.alz.org/manh <ul style="list-style-type: none"> • Support Groups • Community & Family Education • Research
Dementia Action Alliance	A non-profit national advocacy and education organization of people living with dementia, care partners, friends and dementia specialists committed to creating a better country in which to live with dementia.	PHONE: 732-212-9036 EMAIL: info@daanow.org	www.daanow.org <ul style="list-style-type: none"> • Blogs • Initiatives
Massachusetts Councils on Aging	Builds strategic partnerships to educate, empower and advocate for professionals who work with older adults. Lists by city and town the 350 municipal Councils on Aging and senior centers, supporting adults 60 and older.	PHONE: 617-635-4366	www.mcoaonline.org <ul style="list-style-type: none"> • Programs • Services • Activities

ORGANIZATION NAME	OVERVIEW	PHONE # / EMAIL	WEBSITE / LINKS
AARP	A nonprofit, nonpartisan organization dedicated to helping people ages 50 and older to improve their quality of life as they age. They lead positive social change through their extensive product offerings and services.	PHONE: 866-448-3621	www.aarp.org
Hebrew SeniorLife	New England's largest nonprofit provider of senior care and living communities, and an affiliate of Harvard Medical School. Offers brain health services to older adults at all stages, including prevention, diagnosis, outpatient treatment, in-home supports, residential options, and advanced-stage medical care.	PHONE: 617-363-8000	www.hebrewseniorlife.org <ul style="list-style-type: none"> • Outpatient Care • In-home Care • Senior Living • Memory Care assisted Living • Long-term Care

RESOURCES AT THE WOLK CENTER FOR MEMORY HEALTH

The Deanna and Sidney Wolk Center for Memory Health at Hebrew SeniorLife provides comprehensive outpatient care related to brain health, cognitive and behavioral concerns, and memory loss.

We are committed to providing families and patients with answers, hope, and personalized interventions based on what matters most to you and designed to preserve brain health, minimize disability, slow the progression of symptoms, and maximize quality of life. Our services include:

ASSESSMENT AND DIAGNOSIS

Diagnostic clarity to empower you to chart your course forward

- Baseline assessments
- Comprehensive assessment for those experiencing cognitive concerns
- Facilitation of advanced diagnostic testing to guide treatment
- On-site cognitive behavioral neurologist and neuropsychologist

CLINICAL TREATMENT

A multidisciplinary team of specialists to help you navigate your care

- Evidence-based treatment for different forms of cognitive decline and dementia
- Development of a coordinated and individualized treatment plan
- Coordination with your primary care physician
- Available at every stage, it's never too early or too late to seek

RESOURCES AND SUPPORT

Feel heard and supported

- Patient and family counseling services
- Psychotherapy and psychiatry
- Caregiver support groups and education
- Referrals to resources within Hebrew SeniorLife and in the broader community for both patients and care partners
- Helping patients articulate their goals and providing anticipatory guidance about disease process to educate patients and family

TMS (*TRANSCRANIAL MAGNETIC STIMULATION*) FOR DEPRESSION

A non-invasive treatment for depression, personalized for you

- The only TMS program in New England that specializes in treating geriatric depression, though all ages are accepted
- Addresses the special needs of our aging population as depression is more common in seniors, especially those with dementia, and medications for depression present more challenges for older adults
- Highly safe and effective for treatment-resistant depression, with 60% of patients experiencing improvement in symptoms

TEAM APPROACH

A multidisciplinary team of memory health and dementia care experts

- Harvard Medical School-affiliated clinicians who are geriatric care specialists, including a nurse practitioner, neuropsychologist, neurologist, psychologist, psychiatrist, social worker, and geriatric palliative care specialist all in one clinic
- Taking a holistic, individualized approach, our multidisciplinary team meets weekly to coordinate patient care

RESEARCH OPPORTUNITIES

Take part in cutting-edge studies at the Marcus Institute For Aging Research

- Many of our clinicians also hold positions at Hebrew SeniorLife's Hinda and Arthur Marcus Institute for Aging Research and are leading the effort to discover, test, and prove new treatments
- Researchers at the Hinda and Arthur Marcus Institute are discovering new approaches to address the challenges of Alzheimer's disease, dementia, delirium, and other changes to the brain
- Investigating the novel use of non-invasive brain stimulation to improve depression, mood, executive function, cognitive reserve, mobility, gait, and balance while helping to prevent falls

INTEGRATION WITH HEBREW SENIORLIFE'S HEALTH CARE AND SENIOR LIVING SERVICES

Access to a wide range of services from Harvard Medical School's only affiliated senior care organization

- Outpatient services including physical, occupational, and speech therapy as well as audiology, safe-driving evaluations, home safety assessments, and more
- In-home care including home health, private care, and companionship
- Senior living communities for every budget and lifestyle, including Independent Living, Assisted Living, and Memory Care
- Long-Term Care, including Long-Term Chronic Care, offering higher-level, more comprehensive care than a traditional nursing home and specialized care for seniors with advanced cognitive decline treatment

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ABOUT HEBREW SENIORLIFE

Hebrew SeniorLife, an affiliate of Harvard Medical School, is a national senior services leader uniquely dedicated to rethinking, researching, and redefining the possibilities of aging. Through the integration of senior living and health care, Hebrew SeniorLife supports the well-being of more than 4,500 seniors daily across [seven campuses throughout Greater Boston](#). Locations include: Hebrew Rehabilitation Center-Boston and Hebrew Rehabilitation Center-NewBridge in Dedham; NewBridge on the Charles, Dedham; Orchard Cove, Canton; Simon C. Fireman Community, Randolph; Center Communities of Brookline, Brookline; Jack Satter House, Revere; and Leyland Community, Dorchester.

In addition to being home to the [Deanna and Sidney Wolk Center for Memory Health](#), Hebrew SeniorLife's other [outpatient care services](#) include rehabilitation therapy, nutrition services, osteoporosis screening, and audiology. And our [in-home care services](#) bring home health, private care, palliative care, and hospice care to older adults through home visits to private residences in Greater Boston.

Founded in 1903, Hebrew SeniorLife also conducts influential research into aging at the [Hinda and Arthur Marcus Institute for Aging Research](#). With a grant portfolio of more than \$98 million, the Marcus Institute is one of the largest gerontological research facilities in a clinical setting in the United States. Hebrew SeniorLife also trains more than 500 geriatric care providers each year.

For more information about Hebrew SeniorLife, visit us at www.hebrewseniorlife.org.

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