

Road Map to Prevention



Aging & Memory Loss Road Map Series

I. Dementia Diagnosis

II. Research Participation

III. Caregiving

IV. Prevention

V. Behavior Management

VI. Social Engagement

Reducing Risk Via Prevention Strategies

Prevention is always better than cure and this also applies to Alzheimer's disease (AD). Unfortunately, there is no cure for AD, but you can reduce your risk of developing this terrible disease using multiple different strategies. Studies have shown that probably 35% or more of one's risk for AD and other dementias may be eliminated by a brain healthy lifestyle and keeping up with one's health overall. In this booklet, you will learn more about how we age over time and become proactive in fighting against AD.

How Brains Change With Age

Many people experience mild memory difficulties as they get older. Sometimes, they experience this problem frequently and seek medical attention. These individuals may ultimately develop one of the following conditions:

Subjective Cognitive Decline (SCD): Patients who experience and report to their doctors, frequent confusion or memory loss within the past 12 months, but problems are not apparent on detailed cognitive tests. Although SCD is a risk factor for AD and other dementias, many people with SCD do not progress to developing these diseases.

Mild Cognitive Impairment (MCI): Patients who have more problems on cognitive testing than is expected for their age, but their problems do not significantly impair their ability to complete basic tasks such as cooking, driving, or paying the bills. A person with MCI or their family members often notice frequent memory lapses and maybe some worsening of memory over time. MCI is a risk factor for Alzheimer's disease and other forms of dementia but not everyone with MCI advances to a form of dementia.

Dementia: Patients who have more problems on cognitive testing than is expected for their age and the problems do affect their ability to complete at least some tasks of daily functioning, like cooking, managing medications, or driving. Dementia is a general term that implies some decline in daily functioning, which separates it from SCD or MCI. Dementia can be caused by many diseases, including Alzheimer's disease (about 60-80% of cases), strokes, Parkinson's disease among others.



For more helpful resources, visit:



WWW.MADRC.ORG



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What Are Normal Changes In Memory?

As we age, it is normal to experience some changes in memory. Most older adults experience some type of cognitive change. The following changes are most common:

- Forgetting names more frequently
- Having trouble switching from one subject to another in conversation
- Requiring effort and time to learn new information

Normal age-related memory loss may result from your brain's decreased ability to retrieve information. It can take more time to remember or learn new things. Although it might be frustrating, these memory changes should not be significant enough to affect your daily living.

The following types of sudden memory loss are frequently reported and are a normal part of aging:

- Forgetting why you walked in a room
- Word-finding difficulty in a conversation
- Misplacing items around the house
- Forgetting a bank card PIN or password

To some degree, we all experience memory loss in one instance or another. This does not mean that you have Alzheimer's disease. However, frequent memory loss is concerning. A neurologist or psychologist can perform multiple tests to determine the cause of your memory problems.

**Age Related
Memory Changes
VS.
Cause for Concern**

UNDERSTANDING THE DIFFERENCE

Many people notice changes with their memory and thinking as they age. If these changes are causing concern, write them down and address them with your doctor.



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**MASSACHUSETTS
Alzheimer's Disease
Research Center**

Normal Aging	Cause for Concern
Forgetting, or slow to recall, names	Missing appointments
Misplacing items	Putting items in odd places (milk in cabinet, keys in microwave)
Forgetting where you parked	Difficulty following traffic signs
Forgetting why you entered a room	Asking the same questions repeatedly
Occasional difficulty finding words	Getting lost in familiar places
You are worried about your memory changes but your friends & family are not	You do not notice memory problems but friends & family are concerned

How To Reduce Your Risk For Alzheimer's Disease

Taking the following steps can help decrease your chances of developing Alzheimer's disease. These are all brain-healthy behaviors that are also important for healthy cognitive aging. Please remember it is never too late or too early to start incorporating these strategies into your life:

Step 1: Eat a Healthy Diet *

Eat These Foods Every Day:

- Whole grains (such as 100% whole wheat bread, brown rice, oatmeal)
- Green leafy vegetables (such as kale, spinach, collard greens)
- Fruits (such as blueberries, strawberries, kiwi, oranges)
- Fatty Fish (such as salmon, tuna)
- Beans/lentils/nuts (such as kidney beans, pinto beans, almonds, pistachios)

Eat These Foods in Moderation

- Poultry (chicken, turkey)
- Eggs
- Dairy (milk, butter, cheese, ice cream)
- Alcohol (wine)

Avoid Eating These Foods:

- Refined Sugars: These are extracted and processed from natural foods to enhance flavor. Examples include high fructose corn syrup, white flour and artificial sweeteners.
- Red Meat: If eating, try to purchase the leanest option (with less saturated fat) and meat from grass-fed cows, which eat a cleaner diet.
- Saturated Fats: These are fats that remain solid at room temperature, such as butter, and can clog arteries if eaten in excess.

Step 2: Exercise Frequently **

Exercise is very beneficial for both your brain and your heart. Research shows that 30-60 minutes of aerobic (cardio) exercise, 3-4 times per week, can lower your risk of developing AD and other dementias.

Aerobic exercises are ones that increase your heart rate, cause you to sweat lightly and feel out of breath. Any physical activity can benefit your brain because it increases endurance and blood flow to the brain.

*See chart P.4

**See chart P. 5



BRAIN-HEALTHY DIET



RECOMMENDED SERVINGS

Whole Grains – 3 servings per day

A serving equals 1 slice or ½ cup of any of the following:

Dark or whole grain bread, whole grain pasta, wild quinoa, brown rice, oats, bulgar, barley, farro, whole grain cereal.

Green Leafy Vegetables – at least 1 serving per day

A serving equals ½ cup cooked or one cup raw of any of the following:

Spinach, swiss chard, kale, collard greens, mustard greens, turnip greens, dandelion greens, arugula, endive, grape leaves, romaine lettuce.

Other Vegetables – at least 1 serving per day

A serving equals ½ cup cooked or one cup raw of any of the following:

Asparagus, bell peppers, broccoli, brussel sprouts, cabbage, carrots, cauliflower, eggplant, green beans, mushrooms, onions, okra, snow peas, squash, sweet potatoes, tomatoes/tomato sauce.

Fish – at least 1 serving per week

A serving equals 3-5 ounces of any of the following:

Salmon, tuna, cod, mahi mahi, tilapia, halibut

Poultry – at least 2 servings per week

A serving equals 3-5 ounces of any of the following:

White meat and skinless chicken or turkey

Extra Virgin Olive Oil – 1 serving per day

A serving equals 2 Tablespoons

Nuts – 5 Ounces per week

A serving equals 1 ounce of any of the following:

Peanuts, almonds, walnuts, cashews, pistachios, nut butter

Berries – at least 5 servings per week

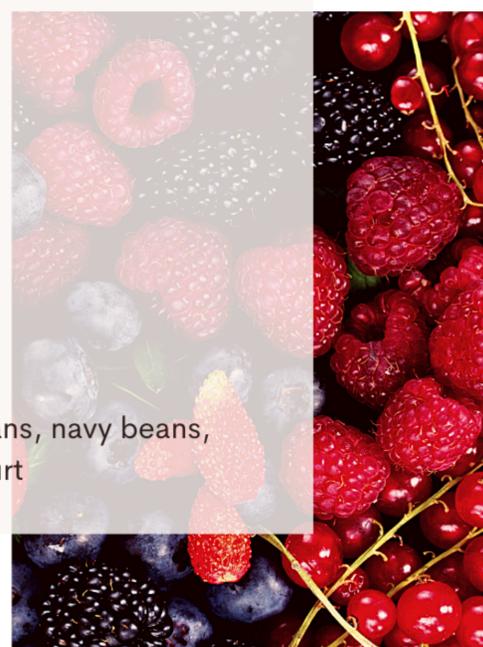
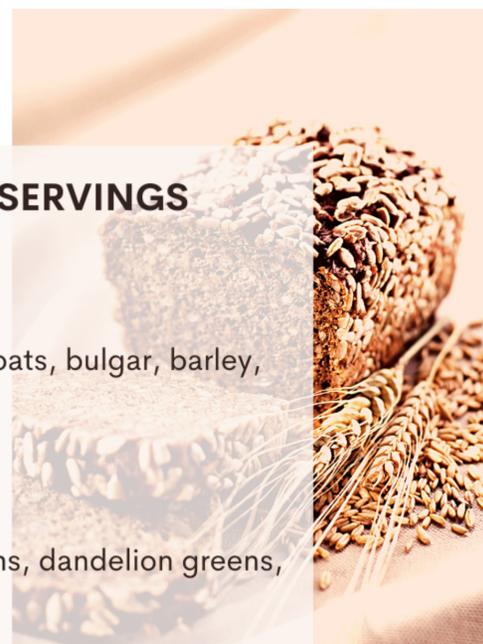
A serving equals ½ cup of any of the following:

Blueberries, strawberries, raspberries, blackberries

Beans/Legumes – 3 servings per week

A serving equals ½ cup of any of the following:

Black beans, pinto beans, cannellini beans, garbanzo beans, kidney beans, navy beans, red/white beans, lima beans, lentils, tofu, hummus, edamame, soy yogurt



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Bread is made with flour that typically comes from grain kernels which have three parts – bran, germ and endosperm. Whole grain food items contain all three parts of the grain kernel. However, refined grains, such as the flour used to make white bread, have had the fiber-dense bran and the nutrient-rich germ removed during processing. Thus, leaving only the starchy endosperm.

Removing the bran and germ also removes key nutrients, including vitamins, minerals, healthy fats, protein, and fiber. As a result, 100% whole wheat bread is typically healthier than white bread, since it contains more fiber and has a higher nutritional value.

BRAIN HEALTHY EXERCISE TIPS

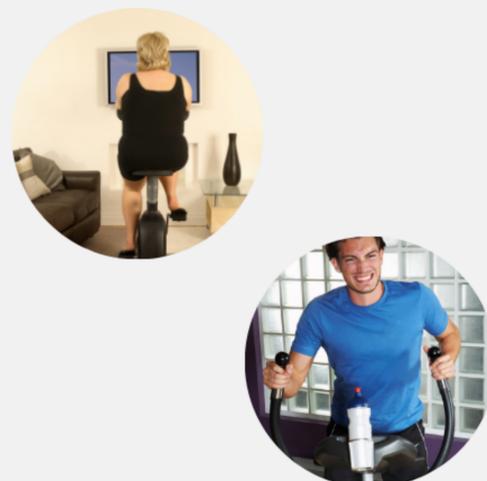
When exercising, doing a little is better than doing none at all. Research shows that what's good for the heart is good for the brain.

Aerobic exercise, that increases your heart rate, shows the most benefit. The American Heart Association suggests these target heart rates for maximum exercise benefit.

Age	Target HR Zone 50-85%	Average Maximum Heart Rate, 100%
20 years	100-170 beats per minute (bpm)	200 bpm
30 years	95-162 bpm	190 bpm
35 years	93-157 bpm	185 bpm
40 years	90-153 bpm	180 bpm
45 years	88-149 bpm	175 bpm
50 years	85-145 bpm	170 bpm
55 years	83-140 bpm	165 bpm
60 years	80-136 bpm	160 bpm
65 years	78-132 bpm	155 bpm
70 years	75-128 bpm	150 bpm

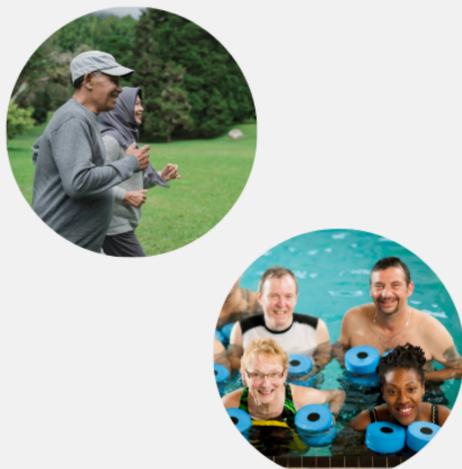
Suggested Indoor Exercises

- Treadmill
- Stair Climbing
- Elliptical Trainer
- Stationary Bicycle
- Group Fitness Class
- Video Exercise Class



Suggested Outdoor Exercises

- Walking or Jogging
- Cycling
- Cross-Country Skiing
- Rowing
- Water Aerobics
- Swimming



Combining the activities listed above with strength training and light weightlifting is beneficial for bone health and reducing risk of injury. However, for brain health, the focus is on aerobic exercise.



Step 3: Stay Mentally Fit and Socially Active

Avoid being isolated. Interact with friends and family through activities such as card and/or board games, attending social gatherings, or taking a class together to learn something new. This can help enhance your memory and processing speed. Following are some other recommended ideas for staying mentally fit and socially active:

- Puzzles & Games: Sudoku, crosswords, jigsaw puzzles, board games, card games, and online “brain/cognitive” games
- Reading: Newspapers, magazines, books, and/or online articles
- Learning: Take an art, dance, or craft class, learn to use a new type of technology, sign up for a continuing education course.
- Socializing: Host gatherings with family and friends or talk with them over the phone or through video meetings.
- Community Activities: Attend a concert or lecture, volunteer for a local organization, eat at a new restaurant

Step 4: Build Up Your Cognitive Reserve

Cognitive Reserve is a term used to describe how resilient the brain is when it is “put to the test” during times of stress or at the beginning of cognitive decline. Adopting and maintaining the brain-healthy behaviors in this guide, will help to constantly build up this reserve.

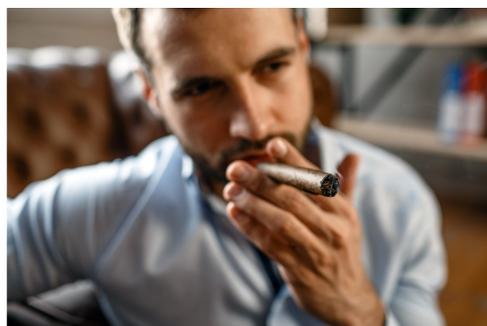
For a person with Mild Cognitive Impairment (MCI) or Subjective Cognitive Decline (SCD), having high cognitive reserve allows them to resist the effects of brain changes that can sometimes be the beginning of AD or other dementias, and use alternate ways to function optimally and resist further changes. For example, if a neurological disease weakens one brain connection, a brain with high cognitive reserve can either strengthen it or create a new one. This allows them to achieve the desired outcome.

The following factors can build up or break down cognitive reserve:

- Build up: Diet and other health factors, education, social engagement and mental fitness



- Break down: poor health, poor sleep habits, substance abuse, poor nutrition, smoking, depression, anxiety and stress.



Step 5: Develop Healthy Sleep Habits

Quality of sleep is often overlooked, but it is crucial to your brain health! Having some amount of uninterrupted sleep each night is important as it allows our brains to remove harmful toxins while going through the normal stages of sleep. If this process is not properly completed, toxins can build up and contribute to cognitive decline. Additionally, poor sleep causes a person to be tired during the day and increases stress, which increases the risk of brain changes leading to AD and other dementias.

HEALTHY SLEEP HABITS

Optimal Sleep Recommendations

Age Group	Recommended Hours of Sleep
18-60	7 or more hours per night
61-64	7-9 hours per night
65 +	7-8 hours per night



Be Consistent



Go to be at the same time each night and get up at the same time each morning, including on weekends.



Get Some Exercise

Stay physically active during the day as this can help you fall asleep more easily at night.



Optimize Bedroom Conditions

Make sure your bedroom is quiet, dark, relaxing and that the temperature is comfortable.

No Electronics



Make sure your bedroom is quiet, dark, relaxing and that the temperature is comfortable.

Things to Avoid

Do not eat large meals or drink alcohol or caffeine prior to bedtime.



Talk to your doctor if you have insomnia, snoring, fatigue or excessive daytime sleepiness.

Step 6: Keep Stress Levels in Check

Everyone experiences stress in their life and can benefit from finding ways to reduce it. Stress can cause damage to brain cells, lead to hypertension or heart disease, and be associated with other chronic conditions.

Stress management techniques include, meditation, mindfulness practices, regular exercise, getting enough quality sleep and discussing concerns with a professional.



Step 7: Maintain Your Health

Some common medical conditions can impact your cardiovascular and mental health and increase your risk for Alzheimer's disease and related dementias. Below is a chart listing several medical conditions, and how each one can impair a person's cognition, as well as recommended actions for each. For example, a lot of research has supported the fact that keeping blood pressure normal, with medications and lifestyle, and treating depression at any time during one's adult life, can significantly reduce one's risk of developing Alzheimer's disease and related dementias.

Medical condition	Physiological response	Action to Take
High blood pressure	Reduces blood flow to the brain	Keep below 120/80 mm Hg
High cholesterol	Increases the risk of stroke and may increase amyloid buildup in the brain	Keep below 180 mg/dL
Diabetes	Causes inflammation and disrupts glucose metabolism in the brain	Keep blood sugar between 100 mg/dL and 140 mg/dL
Metabolic syndrome	High blood pressure, excess fat, low HDL cholesterol, and high blood sugar	Keep BMI between 18.5 and 24.9
Depression	Associated with high cortisol (stress hormone) levels and chronic inflammation in the brain	Meet with your doctor if you are experiencing symptoms

Medications and Supplements

Always discuss any medications and/or supplements you are taking with your doctor to ensure that they are appropriate and brain healthy. Some can cause negative side effects. For example, some antihistamines (such as Benadryl) which are used to treat allergies, can cause blurred vision, dry mouth and confused thinking – especially in older people.

Ingredients to look out for in other over-the-counter medications include diphenhydramine, brompheniramine and chlorpheniramine. These active ingredients in allergy medications should be discussed with your doctor. Alternatives to these to discuss with your doctor might be melatonin or chamomile.

Prescriptions

Medications that are “anticholinergic” can have the side effect of blocking chemical messages that help brain cells communicate with each other. This can cause difficulties with memory or cognition. Some commonly used medications for urinary urgency and anxiety, for example, have these properties. In general, older individuals should have at least a brief discussion about all the medications they are taking and their potential for cognitive/memory side effects, and find alternatives where possible.

Supplements

Vitamins and supplements can have a variety of effects on cognitive health. While some supplements related to memory and aging may be helpful for some conditions/individuals, most have little proven benefit in research studies. Additionally, although some supplements are marketed as “brain boosters” or “natural cures,” they have not been studied for safety/efficacy. Discuss supplements with your doctor for more information.

The Importance of Research

Having research volunteers who are diverse in race, age, gender, ethnicity and identity is critical to finding treatments and a cure that will work for all. There are research opportunities available for everyone, whether you are cognitively healthy, have a diagnosis of Alzheimer’s disease or a related dementia or are just concerned about your memory and thinking.

Participation in research allows people to learn more about their own health, while helping to advance science. The Massachusetts Alzheimer’s Disease Research Center (MADRC) at Mass General Brigham, offers both observational studies and clinical trials for people with memory problems as well as those who are cognitively healthy. To learn more visit:

www.madrc.org/join-a-study/

Memory Concerns

The Center for Alzheimer Research and Treatment (CART) at Brigham & Women's Hospital, provides free memory screenings. Evaluations are done via phone or in person and results are reviewed with medical experts.



COMMUNITY MEMORY SCREENINGS

Concerned that you or a loved one are having memory issues?

Has this change been constant over the last 6 months?

- Memory screenings are available, free of charge, to people in the community who have concerns like those listed above.
- Screenings will help evaluate and better understand memory concerns.
- After the screening, participants will get a follow up plan which includes an evaluation of eligibility status for participation in a memory and aging research study.
- Memory screening appointments will last about 45 minutes. They can be done remotely or in-person on Fridays, between 8AM-12PM at Brigham & Women's Hospital.

Memory Screenings are by appointment only

To schedule a screening call 617-525-3666 or
email: CVALENZUELA1@BWH.HARVARD.EDU

Additional Clinical Support

- MGH Memory Disorders Division: www.massgeneral.org/neurology/treatments-and-services/memory-disorders-division
- MGH Multicultural Assessment and Research Center: www.massgeneral.org/psychiatry/treatments-and-services/multicultural-assessment-and-research-center
- BWH Center for Brain/Mind Medicine: www.madrc.org/bwh-center-for-brain-mind-medicine/
- BWH Rapid Diagnostic Clinic: www.madrc.org/bwh-center-for-brain-mind-medicine//wp-content/uploads/2016/09/RDC-Clinician-Info.pdf
- McLean Memory Diagnostic & Assessment Clinic: www.mcleanhospital.org/older-adult

Research Information and Resources

Brigham & Women's Hospital
Center for Alzheimer Research & Treatment
(617) 732-8085
CART@partners.org

Massachusetts General Hospital
Alzheimer's Clinical & Translational Research Unit
KCROPP1@mgh.harvard.edu

Massachusetts Alzheimer's Disease Research Center
<https://www.madrc.org/join-a-study/>
For research study information: (617) 278-0600

Alzheimer's Association
MA/NH Chapter: 617-868-6718, National Helpline: 800-272-3900, www.alz.org

Association for Frontotemporal Degeneration
Helpline: 866-507-7222, www.theaftd.org

Lewy Body Dementia Association
LBD Caregiver: 888-204-3054, www.lbda.org

National Institute on Aging: Alzheimer's Disease Education and Referral Center (ADEAR)
ADEAR Center: 800-438-4380, www.nia.nih.gov/health/about-adear-center

Alzheimer's Foundation of America
National Hotline: 866-232-8484, www.alzfdn.org

Clinical Trial Information
National clinical trial information: www.clinicaltrials.gov

National Institute on Aging: Alzheimer's Disease Education and Referral Center (ADEAR):
800-439-4380

Alzheimer's Association TrialMatch: 800-272-3900

Alzheimer Prevention Network: www.alzpreventionnetwork.org

Massachusetts General Hospital
Frontotemporal Disorders Unit
(617) 726-8689
MGHTFDUNIT@partners.org

Massachusetts General Hospital
Lewy Body Dementia Unit
(617) 726-1728
mquan4@mgh.harvard.edu

Prevention Research

A new Alzheimer's Prevention Trial called the AHEAD Study aims to break new ground in research by finding a treatment that targets memory loss earlier. The study is recruiting both English and Spanish speakers aged 55 and older who do not have symptoms of Alzheimer's but are at risk for getting it. Learn more: www.aheadstudy.org

For additional information about MADRC-affiliated research: www.madrc.org/join-a-study/

MADRC Aging & Memory Loss Road Map Education Series

These helpful guidebooks, on a variety of topics, can be accessed here: www.madrc.org/community/



AGING & MEMORY LOSS ROAD MAP EDUCATION SERIES

- Road Map to Dementia Diagnosis
- Road Map to Research Participation
- Road Map to Caregiving
- Road Map to Prevention
- Road Map to Behavioral Management
- Road Map to Social Engagement

Learn more: www.madrc.org/community/

The Road Map Education Series is a great resource for people navigating the journey through memory loss, Alzheimer's disease or a related dementia.

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MASSACHUSETTS Alzheimer's Disease Research Center

GLOBAL ALZHEIMER'S PLATFORM FOUNDATION

A lack of volunteers to participate in research studies is the biggest obstacle for potential treatments in Alzheimer's disease. Researchers cannot do it on their own. Every clinical trial needs volunteers. Study participants become part of the research team, receive updated health information and are typically reimbursed for travel expenses.

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