

Section

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M E D I C I N E

Guide to

Memory Loss and Aging

by the Editors of Johns Hopkins Health Alerts

**Special
Report**

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Guide to Memory Loss and Aging

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12 Ways to Protect Your Memory: Introduction

A certain amount of forgetfulness is to be expected with age. The difference between normal forgetfulness that increases with age—known clinically as age-associated memory impairment (AAMI)—and serious dementia is that the former is not disabling. The memory lapses associated with AAMI are most likely to occur when a person is tired, sick, distracted, or under stress. Under better, less stressful circumstances, the same person is usually able to remember the necessary information with ease. Indeed, studies repeatedly show that older people who do poorly on timed tests actually do as well as or better than their college-age counterparts when permitted to work at their own pace.

Worrying about memory loss, in fact, makes

it much more likely that no serious conditions are responsible for the lapse: People with serious memory impairment tend to be unaware of their lapses, don't worry about them, or attribute them to other causes. However, if the memory lapses interfere with normal daily functioning, or if close friends and relatives of the individual believe that the lapses are serious, some more complex cause may be at fault.

Although AAMI is common and is not a sign of a serious neurologic disorder, it can be frustrating and socially embarrassing. While there is no way to eliminate completely the minor memory lapses that occur with age-associated memory impairment, a number of strategies can improve overall memory ability at any age.

Everyday Forgetfulness vs. Dementia

As people age, many become concerned with “senior moments,” that is, brief lapses in memory, such as forgetting a name or where you placed your keys. Such moments of forgetfulness may increase with age, a condition called age-associated memory impairment. But these deficits are often part of the aging process

and do not necessarily indicate that a person has a more serious disease. The chart below can help you better distinguish everyday forgetfulness from the type of deficits characteristic of dementia.

Typical Age-Related Lapses	Symptoms Indicating Dementia
Independence in daily activities preserved	Person becomes dependent on others for daily living activities
Complains of memory loss but able to provide considerable detail regarding incidents of forgetfulness	May complain of memory problems only if specifically asked; unable to recall instances where memory loss was noticed by others
Person is more concerned about alleged forgetfulness than are close family members	Close family members are much more concerned about incidents of memory loss than person
Recent memory for important events, affairs, and conversations not impaired	Notable decline in memory for recent events and ability to converse
Occasional difficulty finding words	Frequent pauses and substitutions while trying to find words
Does not get lost in familiar territory; may have to pause momentarily to remember his or her way	Gets lost in familiar territory while walking or driving; may take hours to return home
Able to operate common appliances even if unwilling to learn how to operate new devices	Becomes unable to operate common appliances; unable to learn to operate even simple appliances
Maintains prior level of interpersonal social skills	Exhibits loss of interest in social activities; exhibits socially inappropriate behaviors
Normal performance on mental status examinations, taking education and culture into account	Abnormal performance on mental status examination not accounted for by education or cultural factors

Source: *Diagnosis, Management and Treatment of Dementia: A Practical Guide for Primary Care Physicians*, 1999, p. 4.



Guidelines to Help You Remember

Age-associated memory impairment is common and is not a sign of a serious neurological disorder. But it can be frustrating and socially embarrassing. Although there is no way to eliminate completely the minor memory lapses that occur with age-associated memory impairment, these strategies can improve overall memory ability at any age.

1. Stay mentally active. Staying mentally active is a key part of maintaining memory, as well as other cognitive skills. According to a study of 801 Catholic nuns, priests, and brothers published in the *Journal of the American Medical Association*, people who engaged in the highest rates of cognitively stimulating activities were 47% less likely to be diagnosed with Alzheimer's disease 4-1/2 years later than those reporting the lowest rates of mental activity. In addition, a 21-year study of 469 healthy people (age 75 and older), published in *The New England Journal of Medicine*, found that those who frequently engaged in leisure activities were at reduced risk for developing dementia.

Experts recommend such activities as doing crossword puzzles, playing Scrabble, studying a foreign language, learning to play a musical instrument, starting a new career or hobby, reading, volunteering at a hospital, and maintaining regular social interactions.

2. Stay physically active. An adequate blood supply to the brain is necessary for all mental functions, including memory. Regular physical exercise helps get more blood to the brain and therefore

facilitates better mental functioning. The U.S. Surgeon General and the American College of Sports Medicine agree that at least 30 minutes of moderate activity on most days of the week is a way to reap health benefits. And for people who like to exercise an hour on most days of the week, all the better: A report by the Institute of Medicine says about 60 minutes of activity a day will help adults maintain a healthy body weight.

3. Rule out other causes of memory loss. If you suspect you have memory difficulties, consult your doctor. Many medical conditions and other factors can cause reversible memory problems; these include depression, hearing or vision loss, thyroid dysfunction, certain medications, vitamin deficiencies, and stress. Treating these problems may improve memory.

4. Do not smoke. Smokers are at greater risk for mental decline than nonsmokers, and smoking cessation may reduce this risk. One study showed that current smokers over age 65 were 3.7 times more likely to experience mental decline over a one-year period than people who did not smoke or smoked only in the past. Smoking may impair mental function by damaging the blood vessels that supply nutrients to the brain.

5. Limit alcohol consumption. Heavy alcohol consumption can interfere with proper memory function, but people who drink moderately have a smaller risk of mental decline than either heavy drinkers or nondrinkers. Although no optimal

level of alcohol consumption has been established, experts recommend no more than two drinks per day for men and one drink per day for women.

6. Place commonly lost items in the same spot. If you are prone to losing certain items, such as keys or eyeglasses, choose a place to leave them, and always put them in that spot when not using them.

7. Write things down. If you have trouble remembering phone numbers or appointments, write them down and place the list in a conspicuous spot. Making a daily “to do” list can serve as a reminder of important tasks and obligations. In fact, the mere act of writing notes and making lists reinforces memory.

8. Say words out loud. Saying “I’ve turned off the stove” after shutting off the stove will give you an extra verbal reminder when you later try to recall whether it is still on. Incorporating people’s names into the conversation just after you have met them will serve the same purpose. For example, saying “Very nice to meet you, Jennifer” will help consolidate the memory of this name.

9. Group items using mnemonics. A mnemonic is any technique used to aid in remembering. For example, when memorizing lists, names, addresses, and so on, try alphabetizing them, grouping them using an acronym (a word made from the first letters of a series of words, for example, NATO).

Another mnemonic technique is called an acrostic. Acrostics use the first letter of each item to create new words that form a sentence or phrase (for example, “Every good boy does fine” helps you remember the order of the treble-clef line notes on sheet music: E, G, B, D, F). Using rhymes (“The car is not a plane; it’s parked on

Main”) or creating stories that connect each element to be remembered are also helpful. The more compact or meaningful the mnemonic or story, the easier it will be to remember the information.

10. Use memory aids. Use a pocket notepad, personal digital assistant, wristwatch alarm, voice recorder, or other aids to help remember what you have to do or to keep track of information.

11. Use visual images. When learning new information, such as someone’s name, create a visual image in your mind to make the information more vivid and, therefore, more memorable. For example, if you have just been introduced to a Mr. Hackman, imagine him hacking his way through a dense jungle with a machete.

12. Group items using memory games. When memorizing lists, names, addresses, and so on, try alphabetizing them, grouping them using an acronym (a word made from the first letters of a series of words, for example, NATO), or creating a story that connects each element. The more compact the acronym or the more meaningful the story, the easier it will be to remember the information.

And don’t forget to concentrate and relax! Many environmental stimuli compete for your attention at any given time. To remember something, you need to concentrate on the items to be remembered. Pay close attention to new information that you need to remember, and try to avoid or block out distractions. Have you ever forgotten information during a test that you know you learned well beforehand? Anxiety and stress can inhibit recall, so slow down and relax when trying to remember information. Learning a relaxation technique, such as deep breathing or muscle-relaxing exercises, may help.

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Memory White Paper

A dramatic increase in the number of people affected by Alzheimer's disease has heightened the urgency of the research into Alzheimer's and other dementias. The Memory White Paper brings you state-of-the-art information on how to tell the difference between Alzheimer's, another form of dementia, or ordinary age-related memory loss, and the best ways to keep your memory sharp as you get older. You will also learn about important new research in identifying, treating, and preventing memory disorders, as well as new drugs for Alzheimer's and other dementias that can help slow memory decline.

The Johns Hopkins Memory Bulletin

Edited by Dr. Peter V. Rabins, Professor of Psychiatry at the Johns Hopkins University School of Medicine and co-author of the best-selling guide for caregivers, *The 36-Hour Day*, *The Johns Hopkins Memory Bulletin*

brings timely, in-depth information for anyone facing Alzheimer's disease, dementia, or another memory problem. In each quarterly issue, you'll read about the latest scientific breakthroughs, research findings from the world's foremost medical journals and conferences, medications, caregiver support and relief, plus breakthrough medical discoveries for safeguarding your brain against aging and memory loss. Subscribe today at the special web-only discount and get 4 FREE special reports to download instantly.

The Johns Hopkins Prostate Bulletin

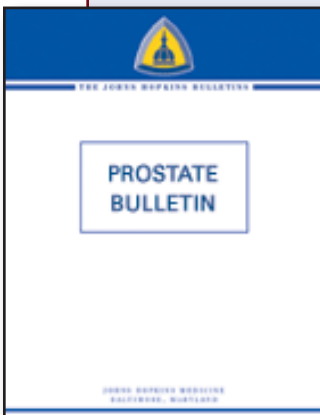
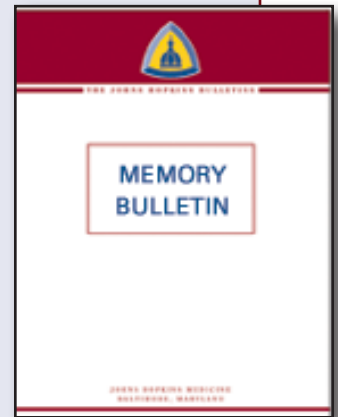
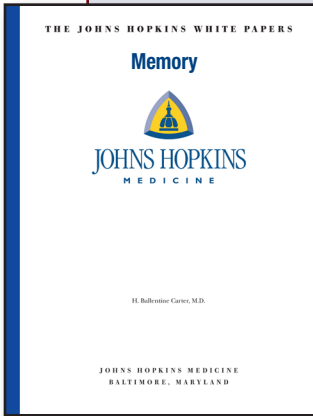
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The Johns Hopkins Medical Letter: Health After 50

Since 1988 this acclaimed monthly newsletter has delivered cutting-edge information on treating the major medical conditions affecting those over 50. Each eight-page issue delivers important news and research on women's health, men's health, nutrition, weight control, arthritis, COPD, colon cancer, dementia and much more. Friendly, easy-to-read, and written in plain English (without any advertising), *Health After 50* speaks directly to your personal health concerns.

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What Is Dementia? An Introduction

Dementia refers to a cluster of symptoms caused by changes in brain function. Memory loss is the hallmark of dementia, but personality and behavior changes are also common. Nearly everyone experiences memory lapses as they age, but dementia interferes with a person's ability to carry out daily activities.

Dementia is caused by many disorders; only a few of them are reversible. In these instances, patients may have a physical or psychological condition, such as a high fever, depression, or a minor head injury, that can improve or be cured with treatment. Most forms of dementia are not reversible. They include Alzheimer's disease (AD), the most common cause of dementia.

Diagnosing Dementia

According to guidelines published by the Agency for Health Care Policy and Research, a person who has difficulties with one or more of the following activities should be evaluated for dementia:

- **Learning and retaining new information.** The person regularly misplaces objects, has trouble remembering appointments or recent conversations, or is repetitive in conversation.
- **Handling complex tasks.** The individual has trouble with previously familiar activities, like balancing a checkbook, cooking a meal, or other tasks that involve a complex train of thought.
- **Ability to reason.** The person finds it difficult to respond appropriately to everyday problems, such as a flat tire. Or, a previously responsible, well-adjusted person may display poor judgment about social or financial matters.
- **Spatial ability and orientation.** Driving and finding one's way in familiar surroundings become difficult or impossible, and the person may have problems recognizing known objects and landmarks.
- **Language.** The ability to speak or comprehend seems impaired, and the person may have problems following or participating in conversations.
- **Behavior.** Personality changes emerge. For example, the person appears more passive and less responsive than usual, or more suspicious and irritable. Visual or auditory stimuli may be misinterpreted.

Distinguishing Normal “Senior Moments” From More Worrisome Memory Lapses

Occasional memory lapses, such as forgetting why you walked into a room or having difficulty recalling a person’s name, become more common as we approach our 50s and 60s. It’s comforting to know that this minor forgetfulness is a normal sign of aging, not a sign of dementia.

But other types of memory loss, such as forgetting appointments or becoming momentarily disoriented in a familiar place, may indicate mild

cognitive impairment. In the most serious form of memory impairment—dementia—people often find themselves disoriented in time and place and unable to name common objects or recognize once-familiar people.

The chart below gives examples of the types of memory problems common in normal age-related forgetfulness, mild cognitive impairment, and dementia.

Normal Age-Related Forgetfulness	Mild Cognitive Impairment	Dementia
Sometimes misplaces keys, eyeglasses, or other items.	Frequently misplaces items.	Forgets what an item is used for or puts it in an inappropriate place.
Momentarily forgets an acquaintance’s name.	Frequently forgets people’s names and is slow to recall them.	May not remember knowing a person.
Occasionally has to “search” for a word.	Has more difficulty using the right words.	Begins to lose language skills. May withdraw from social interaction.
Occasionally forgets to run an errand.	Begins to forget important events and appointments.	Loses sense of time. Doesn’t know what day it is.
May forget an event from the distant past.	May forget more recent events or newly learned information.	Has serious impairment of short-term memory. Has difficulty learning and remembering new information.
When driving, may momentarily forget where to turn; quickly orients self.	May temporarily become lost more often. May have trouble understanding and following a map.	Becomes easily disoriented or lost in familiar places, sometimes for hours.
Jokes about memory loss.	Worries about memory loss. Family and friends notice the lapses.	May have little or no awareness of cognitive problems.



If It's Not Alzheimer's, What Is It?

Differentiating between age-associated memory impairment and dementia due to a medical condition involves a process of systematic elimination. Doctors often start by looking for conditions that are correctable. If these possibilities can be eliminated, then more serious, irreversible dementias – such as Alzheimer's disease – are considered. In addition, the presence of reversible disorders can complicate the irreversible forms of dementia. In these cases, diagnosing and treating concurrent depression, for example, makes it possible to gain a clearer view of any conditions that may persist.

After eliminating treatable causes of memory loss, physicians will consider irreversible dementias as a possible diagnosis. These include well-known conditions, such as AD, stroke, and other vascular abnormalities, dementia with Lewy bodies, and Parkinson disease, as well as less common disorders, such as frontotemporal dementia (for example, Pick disease) and Huntington's disease. Other causes include infectious diseases such as Creutzfeldt-Jakob disease and AIDS.

Vascular Dementia

After AD, the most common cause of memory loss is vascular dementia – a disorder often resulting from a series of tiny strokes (known as infarcts) that destroy brain cells. Each infarct may be so small that it is inconsequential alone; however, the cumulative effect of many infarcts can destroy enough brain tissue to impair a per-

son's memory, language, and other intellectual abilities.

Symptoms can also involve other brain functions: loss of bladder or bowel control (incontinence); a mask-like facial expression; and weakness or paralysis on one side of the body are thought to be noncognitive hallmarks of vascular dementia. Patients who survive a cardiac arrest can also suffer from memory deficits. Rare causes of vascular dementia include lupus erythematosus and other collagen-vascular diseases (these may be at least partially reversible), as well as a major stroke. Vascular causes account for 10 percent to 20 percent of dementia cases.

Dementia with Lewy Bodies

Dementia with Lewy bodies, which sometimes occurs simultaneously with AD or Parkinson disease, may account for 10 percent of cases of dementia. An individual with this form of dementia experiences episodes of confusion, falls, and repetitive hallucinations (such as always seeing the same person sitting on a particular chair), and also has signs of parkinsonism (such as shuffling gait, rigid, stooped posture, poor balance, and slowness) early in the disease.

Frontotemporal Dementias

Diseases causing frontotemporal dementia are much less frequent than AD, and account for 5 percent of cases of dementia. Pick disease is responsible for approximately one third of cases of frontotemporal dementia. Symptoms

associated with Pick disease include impaired initiation of plans and goal setting, personality changes, unawareness of any loss of mental function, and language difficulties (aphasia). Palilalia – compulsive repetition of a word or phrase with increasing rapidity – sometimes occurs later in the illness. The course of the disease can vary from 2 to 10 years, but its final result is death.

Huntington's Disease

Huntington's disease is a rare hereditary disorder of the central nervous system characterized by uncontrollable movement and dementia. The illness begins gradually, usually between the ages of 30 and 40, and can last for up to 20 years. Early signs of Huntington's disease include changes in behavior and unusual, fidgety move-

ments. Symptoms may be mild enough for the disease to go unnoticed for many years. Eventually, however, twisting and jerking movements spread to the entire body and are followed by memory loss, confusion, and hallucinations.

Creutzfeldt-Jakob Disease

Creutzfeldt-Jakob disease (CJD) is a rare, fatal brain disorder that causes a rapidly progressing dementia. The disease, which affects approximately one in a million people worldwide, has received much attention due to the discovery in England of a handful of people who developed a disorder similar to CJD, most likely by eating beef from cattle infected with bovine spongiform encephalopathy (mad cow disease).



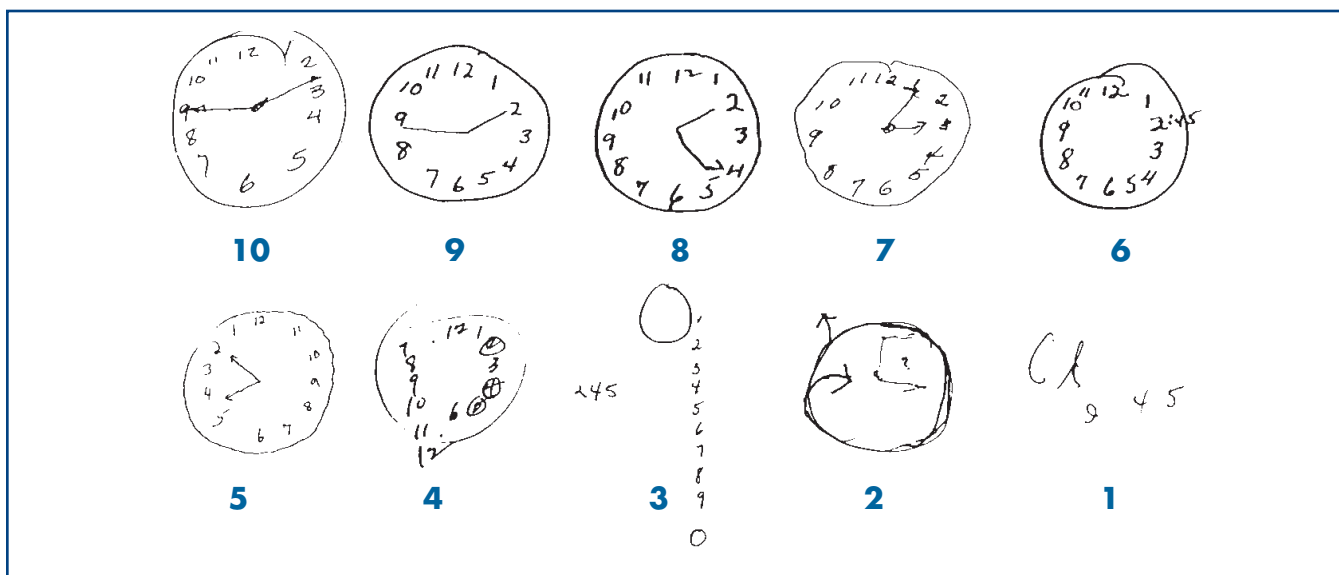
Simple Tests for Measuring Cognitive Impairment

New developments in brain imaging technology are significant advances in Alzheimer’s research and diagnosis. But some decidedly low-tech screening tests may offer quick and inexpensive snapshots of a person’s cognitive health. Whether any of these tests is accurate enough to be used widely for screening remains to be seen, but one or several may be useful on an individual basis.

Clock Drawing Test. The Clock Drawing Test is the most well known of the screening tests for dementia. Patients are asked to draw a clock with the hands pointing to a specified time—for example, 2:45. The most complete,

well-organized, accurate, and spatially correct drawing is rated a “10,” and the least representative is rated a “1.” The more distorted and inaccurate the drawings are, the more likely the person has dementia.

Time and Change Test. This test measures the ability to tell time and perform a simple math task. In the time test, the patient is given 60 seconds to read the time on a clock and gets two attempts to get it right. In the change test, the person is given three quarters, seven dimes, and seven nickels and asked to make change for a dollar. The change test has a three-minute limit, and two attempts are allowed.





Sniff Test. Researchers have known for some time that loss of the sense of smell is an early warning sign of Alzheimer's. The beta-amyloid plaques that ultimately destroy memory and other cognitive abilities accumulate first in areas of the brain that are responsible for perception of odors. In a paper presented at a recent meeting of the American College of Neuropsychopharmacology, people with mild cognitive impairment were given a 10-item sniff test. The odors were lemon, strawberry, pineapple, lilac, clove, menthol, smoke, natural gas, soap, and leather. Study participants who misidentified more than two of the odors were five times more likely to progress to Alzheimer's disease than were those who performed better on the test.

More Quick Tests. If dementia is suspected, doctors may give a person several tests that examine specific cognitive abilities. To test language ability, the patient will be asked to name as many items as possible in a given category, such as fruits or animals. Naming fewer than 10 items in one minute suggests slowed men-

tal functioning. Counting backwards by sevens, spelling a word backwards and forwards, and listing the months of the year backwards are tests of working memory and attention. To test the ability to reason and plan, the doctor may ask the patient to describe similarities and differences between two items, such as an apple and an orange.

Listening to a list of words and reciting them back is a common memory test. A person without memory problems should be able to remember at least three words. Often, the person will be given a distracting task to complete before recalling the words. Someone who cannot remember at least two words out of three may have cognitive impairment.

Bottom line: It's important to realize that these are screening tests, not diagnostic tests. They are designed to be administered and interpreted by a healthcare professional. Poor results are an indication of probable cognitive impairment, but more sophisticated testing is necessary to make a diagnosis of Alzheimer's disease.

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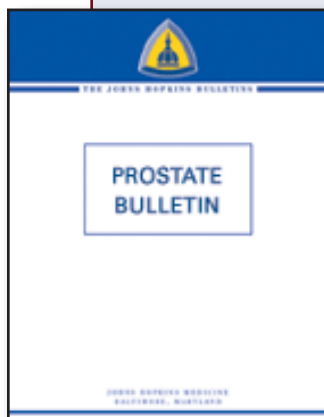
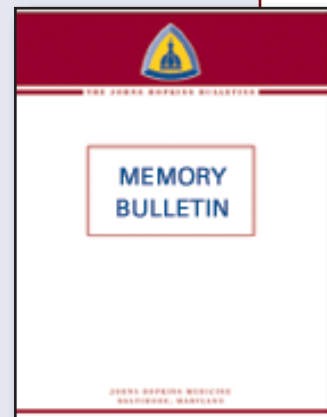
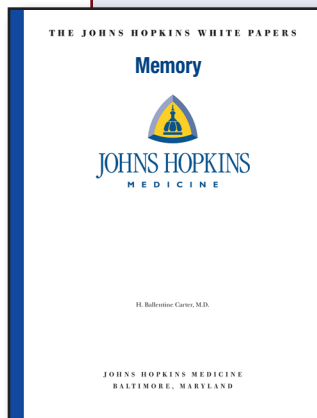
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