

Keep Your Brain Functioning at its Best

The adult brain – about three pounds and the size of a medium head of cauliflower – contains 100 billion neurons (the functional cells in nervous tissue) and 100 trillion synapses (the gap between neurons). Its complexity and capabilities surpass the most sophisticated computer.

Humans begin to lose brain cells a few at a time in their twenties. The body also slows production of the chemicals brain cells need. With age, these changes have an increasingly greater effect on memory. Aging may change the way the brain stores information, making it harder to recall stored information.

Typical changes associated with aging include:

- Slower mental processing. It may take a little longer to learn new things.
- Slower recall of information. Names, faces and facts may not come to mind as quickly.
- Reduced ability to focus on multiple tasks.

On a positive note: People who engage in intellectually stimulating activities can sharpen mental acuity and maintain it well into old age. As new skills and concepts are learned, the brain sparks development of synaptic connections. The more connections, the more dense the brain and the greater the intellectual capacity.

Research shows that older people who do poorly on timed tests will do as well as or better than college-age counterparts if allowed to work at their own pace. A University of Alabama study showed that mental functions of the elderly can be enhanced through demanding activities that force them to reason and react quickly. Another study found that frequent participation in mentally stimulating activities appeared to be associated with a lower risk of Alzheimer's disease.

Memory Loss:

What's Normal? What's Not?

A memory problem is serious when it affects daily living. Occasionally forgetting names is not unusual, but a more serious problem may exist when someone has trouble remembering commonly done skills,

getting to a familiar place, or following steps, such as preparing a recipe. Normal memory problems are often temporary, due to stress or other factors. Individuals might have a memory problem that is annoying, but is manageable and does not become more severe with time. Memory problems due to dementia, including Alzheimer's disease, are permanent and progress in severity.

Alzheimer's disease is not a normal part of aging, but a neurological disease that causes areas of the brain to shrink and decline in function. Individuals with Alzheimer's disease experience progressively greater difficulty managing activities of daily living. Only 10 percent of people over 65 have Alzheimer's disease, but it affects nearly 50 percent of those over 85.

Seven Warning Signs of Alzheimer's Disease

1. Asking the same question repeatedly.
2. Repeating the same story over and over.
3. Forgetting activities that were previously done easily and regularly — cooking, making repairs, playing cards.
4. Losing ability to manage money, pay bills or balance a checkbook.
5. Getting lost in familiar surroundings or misplacing often-used objects.
6. Neglecting to bathe or wearing the same clothes over and over, while insisting a bath was taken or clothes are clean.
7. Relying on someone else, such as a spouse, to make decisions or answer questions the individual previously would have handled without help.

Although the preceding list includes early warning signs of Alzheimer's disease, someone may have several or even most of these symptoms and not have the disease. That individual should be thoroughly examined by a medical specialist trained in evaluation of memory disorders.

Other signs that *could* indicate Alzheimer's disease

— or might be due to other causes — include: memory loss that persistently affects work skills; difficulty completing familiar tasks; disorientation to time and place; poor or decreased judgment

about simple tasks, such as dressing; problems with abstract thinking; misplacing items; extreme, inexplicable changes in mood or behavior; changes in personality; or loss of initiative.

Memory Loss: When to Seek Further Evaluation

Probably age-related forgetfulness ...

- When driving to an appointment, you forget the street address, but can find the building anyway.
- You leave the faucet or stove on, but remember just as you are on your way out the door.
- You ask someone the same question you asked yesterday.
- You forget the name of someone you met the night before, or “blank out” for a moment on a friend’s name.
- You complain and joke with other people about your forgetfulness.

Talk to your doctor ...

- While driving to a familiar location, you become disoriented and have trouble figuring out where to go.
- You leave the faucet or stove on and leave the house – and it’s not the first time it has happened.
- You repeat a question several times on the same day and don’t realize it.
- It sometimes takes a lot of effort to remember the name of a close friend or relative.
- Other people express concern about your memory lapses and suggest that you see a doctor about it.

Source: Focus on Healthy Aging, July 2003

Avoid Memory Loss and Mental Confusion

Stay on Top of Medication Protocol

Both prescription and over-the-counter drugs can affect memory function, as can certain drug interactions. Classes of drugs known to affect memory and brain function include sleeping pills, anti-anxiety medications, painkillers, antihistamines (allergy medications) and antidepressants.

A weight gain or loss of 10 or more pounds can affect the body’s reaction to the usual dose of medicine.

Consuming too much alcohol – or drinking any alcohol at all while taking certain medications – may result in symptoms of memory loss.

Be sure your doctor knows of other prescribed and over-the-counter medications being used, including herbal products, topical items such as arthritis ointments, dietary supplements, and weight loss or smoking cessation products.

Know what is normal for you so you can recognize any physical or mental changes that appear when beginning new medications.

Get Regular Physical Activity

Regular exercise increases the flow of blood to the brain and contributes to other changes relating to alertness. Experts recommend a minimum of 30 minutes of moderate intensity physical activity on most days to supply the brain and body with oxygen. For greater health benefits and to help prevent weight gain, increase the intensity or amount of time to 60 minutes a day.

Physical activities should include: cardiovascular conditioning such as walking, swimming, water aerobics; resistance exercises or calisthenics such as gardening, carrying groceries, or using weights for muscle strength and endurance; and stretching exercises for flexibility.

Practice Good Nutrition

Follow the Dietary Guidelines for Americans. Let the Food Guidance System, My Pyramid, help you make healthy food choices. Choose the most nutritionally rich food you can from each food group each day. Balance calorie intake with your expenditure of energy.

Fruits, vegetables and whole grains are especially important. For a 2,000-calorie/day intake, eat 2 cups of fruit a day and 2 1/2 cups of vegetables. Consume at least 3 ounces equivalent of whole-grain cereals, breads, crackers, rice or pasta every day. One ounce equivalent is 1 slice of bread, 1 cup breakfast cereal or 1/2 cup cooked rice or pasta.

Fruits, vegetables and whole grains are good sources of brain-boosting vitamins and antioxidants. Of special importance are foods rich in vitamin C; vitamin E; beta-carotene; and the B vitamins folate, thiamin and B₆.

Choose foods low in saturated fat, cholesterol and trans-fats. (Trans-fats are partially hydrogenated fats found in hard margarine, baked goods and other kinds of processed foods.)

Choose foods low in added sugars and sodium (salt). If you drink alcohol, do so in moderation.

Use food safety practices that reduce the possibility of food-borne illness.

Include a Rich Supply of Omega-3 Fatty Acids in the Diet

Omega-3 fats help improve mood, prevent and relieve depression, prevent and treat heart disease and certain cancers, and relieve symptoms of inflammatory conditions such as arthritis. Foods rich in omega-3s are cold-water fish (salmon, tuna, lake trout and mackerel), walnuts, canola oil, flax and green leafy vegetables.

Supplement with Vitamin B₁₂

Absorption of vitamin B₁₂ decreases with age. People who cannot absorb B₁₂ from food can absorb it from supplements, which should have 2.4 micrograms of the nutrient. Vitamin B₁₂ helps control homocysteine levels and may help prevent Alzheimer's disease. (Homocysteine is an amino acid associated with Alzheimer's disease and heart disease.) Foods rich in B₁₂ are meat, eggs and dairy products.

Drink Plenty of Fluids

Twenty-five percent of water consumed goes to help the brain function. Too little water can cause anxiety and irritability. Stress can cause the brain to dehydrate slightly, so extra fluids are needed when tired, worried or under pressure. Drink water, 100 percent fruit or vegetable juices and eat high-water solid foods. Report bouts of diarrhea, vomiting or heat exhaustion to your physician. Dehydration can cause medications to be more concentrated, altering the way the body metabolizes them.

Go Easy on Alcohol

Risk of brain damage increases with the amount of

alcohol consumed and duration of consumption. Some studies have shown protection against stroke with low or moderate alcohol use, but individuals who do not drink should not start for "health" purposes. Limit alcohol to one drink a day for women, two drinks for men.

Practice Good Health Habits

Identify and Treat Depression

Depression can appear to be a cognitive deficit when sad feelings crowd out recall ability, judgment and focus. Often when depression is treated, memory improves. New treatments, including use of SAME (S-adenosylmethionine), have shown promise when other treatments were not helpful or tolerated well. Professional help is indicated for the following: feeling sad, helpless or tired all of the time; eating and sleeping habits change; showing little interest in once enjoyable activities; or being unusually confused or too easily distracted.

Manage Diabetes and Thyroid Conditions

People with diabetes should monitor blood sugars, exercise faithfully and eat foods on the schedule and in the quantity needed to keep blood sugar levels stable. Diabetes can hinder oxygen-rich blood from reaching brain cells in adequate amounts. The thyroid produces hormones important to mental functioning, including memory. Take prescribed medications.

Control High Cholesterol and High Blood Pressure

Work with medical professionals to monitor and control cholesterol and blood pressure. To maintain control: Lose excess weight; engage in regular physical activity; reduce sodium consumption; eat more fresh and fewer packaged and prepared foods; have two or three daily servings of low or nonfat dairy foods; and eat potassium-rich foods such as fruits and vegetables. In general, anything that is good for your heart is good for your head.

Don't Smoke

Smoking harms blood vessels, the heart, lungs and other organs as well as the brain.

Don't Use Mind-Damaging Substances

The illegal drug "ecstasy" has been shown to cause long-term memory loss. Ecstasy use combined with cannabis (marijuana) impairs both long-term and short-term memory. Users of both substances might expect memory afflictions in later life.

Limit Exposure to Lead

Lead is a known neurotoxin. Exposure results in cognitive decline.

Light Up Your Life

Natural or full-spectrum light helps the brain function at its best, combats fatigue and — for many people — eases depression.

Get Plenty of Sleep

Regular loss of an hour or two of needed sleep can impair brain function. Factors that can prevent good sleep include medicines, pain, inactivity, eating too much, certain foods, caffeine or alcohol. Get some aerobic and other physical activity every day. Avoid snacking after dinner and go to bed at a regular time.

Relieve Stress

Chronic stress has a direct effect on the brain. Elevations in cortisol — a “fight or flight” hormone — during stressful periods can damage cells in one of the brain’s memory centers, the hippocampus. Elevated cortisol can also halt production of new hippocampal neurons that help commit facts to memory. Understand what causes stress and eliminate or modify stressful situations. Try to control reactions to stress, and do things that promote inner peace.

Talk out feelings with a trusted friend. Engage in a stimulating hobby. Other helps: prayer or spiritual activities, deep breathing, exercise, yoga, pets, a serene environment, music, laughter.

Respond to Stroke as an Emergency

A stroke is a “brain attack” and should be treated with the same urgency as a heart attack. Quick diagnosis and treatment could prevent permanent brain damage.

Control Pain and Infections

Pain is the “fifth vital sign” behind heart rate, blood pressure, temperature and respiration. Besides medication, help for pain can include exercise, weight loss if overweight, stretching, relaxation and meditation. Distractions can help take the mental focus off physical pain.

Full-blown infections, as well as infections that slightly elevate body temperature, can cause mental confusion. Seek medical attention to identify the cause and begin appropriate treatment.

Tell the Doctor About Falls or Head Injuries

A fall or serious bump on the head may be the cause of memory problems or dizziness. The doctor will need to rule out a concussion or other potential problems that arise from such events.

Use Hearing Aids or Glasses if Needed

It is hard to stay intellectually engaged if you can’t hear or see the world.

Exercise the Brain

Remain or Become Socially Active

Staying socially active lowers the risk of developing Alzheimer’s disease. Socializing is one of the best mental workouts. Sharing with others always comes with the potential of mental stimulation that lights pathways between neurons. For example, read to a child, talk on the phone, visit with family or do volunteer work.

Limit Time Spent Watching Television

If a person only watches television and almost never talks, nerve connections in the part of the brain responsible for speech will shrink. Brain waves of someone watching TV are similar to those of someone who is asleep. Choose programs that promote laughter and elevate feelings of well being or those that test problem-solving abilities — such as game shows. Watch the news, then try to recall the topics that were covered.

Use Humor

Laughter bonds people together and relieves tension. Deep, hearty laughter boosts the immune system and produces endorphins, which are natural painkillers. A good laugh helps oxygen get to the brain.

Maintain a Positive Attitude

Happiness enhances alertness and the ability to receive new information. Optimists tend to live longer and have a lower risk of premature death than those who are more pessimistic.

Cultivate an “attitude of gratitude.”

Those who appreciate the good things in the world around them have less disease and less pain. A thankful attitude encourages physical, mental and spiritual well being. It promotes balanced optimism, openness to opportunities, and enhancement of general well being and effectiveness.

Expect Your Memory to Stay Sharp

There is a strong link between culture and memory. Some cultures have the belief that aging causes an inevitable decline in memory skills. In cultures where that preconception does not exist, older people perform as well as young subjects in memory tests. If people expect their memories to get worse with age, they may stop trying so hard to remember.

Keep Your Perspective

Normal aging changes the brain, which makes your mind slightly less efficient in processing new information. But Dr. Paul Takahashi, specialist in geriatrics and expert on cognitive decline at Mayo Clinic, Rochester, Minn., emphasizes that wisdom can compensate for physical changes.

“It’s true that we lose some capacity for new memory. However, experience compensates for this loss. Older adults can still operate at an extremely high functional level despite physiologic changes. Everyone has difficulty remembering things at

times. So don’t lose sight of how much you do remember. Wisdom is built from a lifetime of memories.”

Exercise the Mind

Mental activity keeps the mind sharp and agile. It is important to experience new frontiers. Continuing to learn and challenging the brain causes it to grow, literally. Regardless of age, an active brain produces new dendrites – connections between nerve cells that allow them to communicate with one another. This helps the brain store and retrieve information more easily, no matter what your age.

Mind-Stimulating Exercises

- Learn to play a musical instrument.
- Play Scrabble or other board games. Play cards.
- Work crossword puzzles, word searches or other brain-teasers.
- Interact with people. Volunteer. Join an organization.
- Switch careers or start a new one.
- Start a new hobby or revisit an old one, such as painting, biking, bird-watching, bowling or quilting.
- Learn a foreign language.
- Stay informed about local, state, national and world events.
- Read, both silently and aloud (it works different parts of the brain).
- Join a book discussion group. Be in a play.
- Spend time with family and friends.
- Spend time with children. Read aloud.
- Learn to use a computer. Explore the Internet.
- Take a class. Get involved in Elderhostel events. Go to movies, lectures, museums or a new restaurant.
- Go dancing. Join an exercise group. Swim.
- Write your life story, or write someone else’s story.
- Make up your own list of proverbs.
- Plan a surprise for someone.
- Do math problems in your head or on paper before using a calculator.
- Memorize poems, verses, jokes or songs.
- Try to do something new and different every day.
- Garden: Grow a new flower or vegetable.
- Play jacks, pick-up sticks or carefully cut out pictures from old magazines. (Eye-hand coordination activities stimulate parts of the brain that may not have been challenged lately.)
- Breathe deeply; use total lung capacity.
- Take different routes when you travel.
- Read a newspaper story upside down.
- Go to athletic events and cheer for your team with enthusiasm.
- Write, draw, brush your teeth or do other tasks with your less-dominant hand. Write with both hands at the same time.
- Do something familiar in a different way than usual.
- Spell words backwards.

Ideas to Help Memory

Information is stored in different parts of your memory. Short-term memory may include the name of a person you just met. Recent memory may include what you ate for breakfast. Remote memory includes things that you stored in your memory years ago, such as memories from childhood.

The goal is to keep all three types of memory as sharp as possible. To put information into memory so you can recall it later requires getting the information to the brain, storing it and being able to recall it later. The following ideas may help:

- Keep lists. Put lists in the same place(s) so you can add to them and remember to take them with you.
- Designate specific locations for frequently used items, such as keys, purse, phone numbers and addresses.
- Follow a routine, especially for important items such as taking medication or where you put your glasses.
- Have a designated spot for “take-with-you” items (or send-home-with-the-children items).
- Say aloud what it is you need to remember.
- Set up cues. Put your car keys next to something you need to remember to turn off, such as the iron on the ironing board.
- Visualize. Picture yourself doing the task that you need to remember to do.
- Chunk the information, such as license plate or phone numbers: a 10-digit number, such as a phone number, 3013661755 becomes 301-366-1755. Social security numbers are three numbers, two numbers, then four numbers: 123-12-1234
- Make associations (connect things in your mind), such as using landmarks to help you find places.
- Use rhymes or word associations. For example, “Thirty days hath September . . .” or “Spring Forward, Fall Back.”
- Don’t take on too many mental tasks all at once. Pace yourself.
- Keep a detailed calendar. Check it daily.
- Write it down. Keep a diary.
- Practice repetition. Repeat names when you meet new people.
- Run through the ABC’s in your head to help you think of words you are having trouble remembering. Hearing the first letter of a word may jog your memory.
- Take time to remember. Give full attention to the task at hand. To learn new information, repeat or write it.
- Don’t talk or read with a lot of background distractions, such as a loud TV or radio.
- Keep a small notepad with you, and use it to jot down the names of new acquaintances and other things you don’t want to forget.
- Put sticky notes on the telephone to remind you of calls to make or put a note on your steering wheel to remind you of errands that might be different than your usual routine such as “mail a letter” or “stop by the bank.” A note on the bathroom mirror could remind you of such tasks as “put clothes in the dryer” or “turn off lawn sprinkler.”
- Practice relaxation techniques. Breathe slowly and deeply at a regular pace.
- Follow advice for good health: Exercise. Stretch. Bend. Build and maintain strength. Raise your heart rate. Eat right. Drink lots of water. Don’t smoke.
- Leave yourself “don’t forget” messages or “be-sure-to-remember” messages on your answering machine.
- To retrieve information from remote memory, try focusing on the sounds, smells and sights of the time period you are trying to recall.

What Hasn't Been Proven to Improve Memory, but Is Promoted Anyway

Memory-enhancing supplements

A number of herbal and other supplements are advertised to help improve mental clarity. Few of the claims are backed by science-based research. Conclusions of well-done studies are often contradictory.

Be wary of testimonial claims. Seek information from respected sources such as:

National Institutes of Health, Office of Dietary Supplements — <http://ods.od.nih.gov>

Medical Library Association — <http://mlanet.org>

Tufts University Nutrition Navigator — <http://navigator.tufts.edu>

National Library of Medicine — <http://medlineplus.gov>

U.S. Department of Health and Human Services — <http://healthfinder.gov>

The IFIC Foundation (an educational foundation) — <http://ific.org>

Mayo Clinic — <http://www.mayo.com>

Use Caution

The safety of supplements is not guaranteed. In 1994, Congress passed the Dietary Supplement Health and Education Act, which removed them from the premarket safety evaluations required of foods and drugs. These products can be withdrawn after a problem is found. In addition, there is no standard of product purity or the amount of active ingredient in any given supplement – even from one package to the next.

The UC Berkeley *Wellness Letter* says, “Until further research is done on ways to correct memory lapses, we advise you to forget one thing – the claims of supplement makers. So far, there’s no brain supplement that will help you recall a name or find your keys.”

Some Final Thoughts

Many factors can affect memory and mental functioning. Tests by a qualified medical professional can determine if Alzheimer’s disease or other condition is present.

Lifestyle and attitude play major roles in maximizing optimal mental functioning. People who engage in intellectually stimulating activities can sharpen their mental acuity and maintain it well into old age.

Things to do to lift your heart and spirit

Smile more!
Listen more intently
Watch a child discover something new.
Make room for new friends.
Be free with compliments.
Do something totally silly once in a while!
Tell the people you love that you love them.
Call old friends and catch up on their lives.
Pray more and worry less!
Be quick to forgive others and learn to forgive yourself.
Whatever you do, give it your best shot!

Accept help when it’s offered.
Challenge your body and your brain.
Accept yourself for who you are.
Look at the big picture and don’t sweat the small stuff!
Watch the sunset and realize that just as no two sunsets are alike,
So you are a unique and beautiful creation.

(from *The Comfort of Home*, *Caregiver Assistance News*,
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