



Staying Sharp

current advances
in brain research

Quality of Life



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NRTA: AARP's Educator Community

NRTA (www.aarp.org/nrta) is AARP's educator community. Consistent with AARP's mission, NRTA is dedicated to enhancing the quality of life for all as we age, specifically through a focus on education and learning. NRTA works for positive social change in the field of education and provides members with valuable information, advocacy, and service initiatives related to learning and education. NRTA provides national leadership through its network of affiliated retired educators' associations in 50 states and 2,700 communities and through its national office at the AARP headquarters in Washington, D.C. The partnership with the Dana Alliance for Brain Initiatives, and the Staying Sharp initiative, recognizes and explores the intimate connection between the brain, human behavior, and the ability to continue to learn throughout life.

The Dana Alliance for Brain Initiatives

The Dana Alliance for Brain Initiatives (www.dana.org) is a nonprofit organization of more than 200 leading neuroscientists, including ten Nobel laureates. The Dana Alliance is committed to advancing public awareness about the progress and benefits of brain research and to disseminating information on the brain in an understandable and accessible fashion. Supported entirely by the Dana Foundation, the Dana Alliance does not fund research or make grants.

The Dana Foundation is a private philanthropic organization with principal interests in science, health, and education. The Foundation's current areas of emphasis are in immunology and neuroscience research, and in K–12 education, particularly the training of arts educators.

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Most of us would like to live our lives to the fullest every day. We want to maintain our day-to-day activities and enjoy the things that bring us pleasure, no matter what our age is. We don't want to be crippled by health problems or overly dependent on others. Living well in old age is more important than just living to old age.

The good news is that many of us are doing just that. According to the National Institute on Aging, older people today are not just living longer, they are generally better off — healthier and wealthier — than ever before. Almost three-quarters of Americans 65 years of age and up report their health as good or excellent. And the rate of disability among older persons is declining at an accelerating pace, in a country that already enjoys one of the lowest disability rates in the world.

Feeling “old” is a state of mind, many have said, and the cliché may be truer now than ever. Modern medicine has extended our life span, and is now rewriting the old rules of aging. Indeed, “normal aging” may be an outdated and misleading concept, as there are great differences in how people age and many factors that influence our quality of life as we age. Some of the body and mind changes normally associated with aging may not be normal at all, but rather the result of treatable health conditions or a lifetime of poor health habits. Experts say that only about 30 percent of physical aging can be traced to our genes; the rest is up to us. And there is a lot we can do to take charge of our health and improve our quality of life, no matter how old we are.

Staying Sharp

Many of the scourges of aging might be prevented if we followed the old-fashioned advice of eating right, staying active, and getting plenty of rest. In fact, that same advice, along with a few new insights from aging research, can go a long way to keeping not only our bodies healthy as we age, but our brains as well.

Good mental health — or “cognitive fitness,” as some have called it — is as important to overall quality of life as physical health. And it demands similar attention.

Sometimes, what may seem like declining mental fitness in older people may actually be symptoms of treatable health conditions. For instance, the incidence of depression increases with age. Yet depression, a brain-based illness that can be successfully treated in most people, is often not recognized or treated properly. Many chronic health disorders, such as heart disease or high blood pressure, as well as many of the medications older people may need to take, can cause changes in mental functioning.



Many of the problems associated with brain aging, such as failing memory or loss of mental sharpness, may be minimized, delayed, or prevented by a lifelong commitment to brain health. In fact, brain researchers have identified a number of characteristics associated with successful brain aging — traits or habits shared by people who stay sharp well into old age. (See below.)

What's New in Brain Research

Brain research is shedding new light on the many ways the brain changes with age and how these changes might be influenced. Though genes undoubtedly play some role, there are many things we can do throughout life to make a difference in brain health as we age:



Use Your Mind

“Exercising” your mind may forestall mental decline by strengthening connections between brain cells. Intellectual challenge seems to be crucial.

Exercise

Physical activity, especially aerobic exercise and moderately strenuous activity, seems to help preserve mental sharpness.

Make a Difference

Feeling in control and believing that what you do makes a difference in your day-to-day life — what scientists call “self-efficacy” — is strongly associated with successful brain aging.

Stay in School

For reasons still unclear, how long you stayed in school is closely linked to lifelong brain health. Continued learning, even outside of formal education, may help.

Don't Do Drugs

Excessive alcohol (more than three drinks a day) and illicit drug use are hazardous to brain cells, possibly causing irreversible damage.

Protect Your Head

Using seat belts and helmets greatly reduces the risk of sustaining a head or spinal cord injury. Even minor head injuries can impair mental functioning.

Manage Stress

Chronic stress is known to damage nerve cells by subjecting them to high levels of stress hormones. Decreasing stress improves memory performance.

Be Heart Healthy

A large recent study showed that, even in early stages, diabetes or atherosclerosis (hardening of the arteries) significantly increases the risk of cognitive decline. Both conditions may be preventable with appropriate lifestyle modifications, and both can be treated.

Source: Dana Alliance for Brain Initiatives (Press Office)

Staying Socially Connected

Loneliness kills. Some research indicates that people with good social networks live longer and are physically healthier than people who are socially isolated. In fact, experts say social connectedness is one of the most important predictors of health and independence in later years. A major public health study involving more than 116,000 people found that those with strong relationships had less mental decline and lived more active, pain-free lives without physical limitations. Other studies



support the findings, including ones suggesting that people with the most limited social connections are twice as likely to die over a given period than those with the widest social networks. Several small studies of patients with

metastatic breast cancer or melanoma showed an association between participation in support groups and longer life.

Older people may be more likely to lead solitary lives, especially if family and friends have moved away or died. Many experts believe that social isolation may create a chronically stressful condition that accelerates aging.

Combating loneliness requires effort, both in establishing new relationships and in deepening existing ones. Some suggestions:

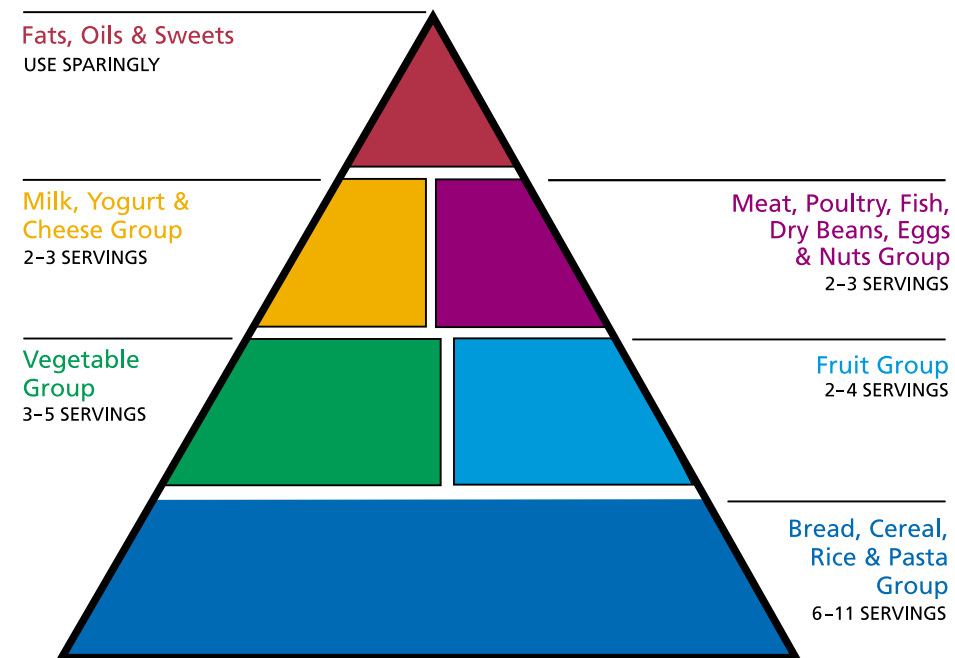
- Get involved in projects that entail regular contact with others.
- Investigate the options available in your community and take advantage of programs and services that are offered at community centers, local offices for aging, and senior centers.
- Seek out people who may share your interests through involvement in houses of worship, clubs, hospital foundations, and nonprofit organizations.
- Volunteer your time for a cause in which you believe.
- Get connected while you improve your health: join a walking club, have dinner at a church supper, or take an adult-education course in something that interests you.
- Don't overlook animal companionship: furry or feathered friends can bring great joy and purpose into our lives.



Diet

It's no secret that eating right is important to your health. In fact, the food choices we make throughout life can decrease — or increase — our risk for many of the diseases that cause premature death or disability in later years, including heart disease, cancer, stroke, and diabetes. Consider, for example, these insights from three long-term studies being conducted by the Harvard School of Public Health, and involving almost 300,000 people:

- The incidences of breast and prostate cancer are higher in people who eat fewer vegetables.
- Colon cancer is more common in both men and women who eat more red meat.
- Diets high in fat, especially saturated fat and trans fatty acids, increase the risk of heart disease, diabetes, stroke, and some types of cancer.



- Eating lots of highly refined carbohydrates, such as commercially prepared cakes, cookies, crackers, and breads, increases the risk of obesity, diabetes, and heart disease.

Overweight and obesity are leading causes of many of the diseases that may rob us of quality years in later life. While exercise plays an important role in weight management, what we put in our mouths may be the biggest problem. Americans have a notoriously high-fat diet, and most Americans don't eat enough whole grains, vegetables and fruits, or low-fat dairy products.

Our need for energy to fuel body and brain processes does not change much as we age. We may require somewhat fewer calories, but we need just as many essential nutrients, or in some cases, more. For example, our body's ability to produce vitamin D decreases with age, so we may need to consciously choose foods that are good sources of vitamin D, such as egg yolks, fortified dairy products, and liver. Food sources — not

vitamin supplements — are the best way to get the nutrients you need. In fact, some vitamin supplements, as well as many herbal preparations, can interfere with the actions of prescription medicines, so it's important to tell your doctor about any supplements you are taking. Supplements are not regulated, and many have not been properly studied to determine their effectiveness or possible side effects.

Sometimes physical problems can interfere with our ability to eat well. For example, missing teeth or gum disease can make chewing difficult, and gastrointestinal problems such as constipation, diarrhea, or heartburn may limit what we can eat. Our senses of taste and smell may be diminished as we age, and some prescription or over-the-counter medications can alter food tastes. If we are depressed or lonely, we may not feel like eating or preparing meals. Significant changes in eating habits or appetite might be a sign of a medical condition or side effects of medications, and should be discussed with your doctor.

Healthy Eating Habits

Eating right doesn't have to be complicated. Following the Food Guide Pyramid from the U.S. Department of Agriculture, which emphasizes whole grains and fresh fruits and vegetables as the foundation for a well-balanced diet, is a good starting point. Other suggestions:

- Drink 8–10 cups of fluid every day, and make at least 5 of them water. Limit caffeinated and alcoholic beverages, which act as diuretics and may flush nutrients from your body.
- Reduce your intake of saturated fat (such as that in animal products), and replace it with monounsaturated fat (such as that in olive, canola, sunflower, safflower, and soybean oils).
- Eliminate or reduce trans fatty acids, which are found in many processed foods and appear on ingredient lists as hydrogenated vegetable oils.
- Stick to healthy choices such as fruit, vegetable sticks, or whole-

grain products, when snacking.

- Ask for and follow special diets recommended by your doctor or a nutritionist.
- Join a cooking class to learn low-fat, healthy meal-preparation techniques.
- Make eating fun: join family, friends, or community functions when possible.
- Ask for help if you have difficulty preparing meals or arrange for home-delivered meals from community programs. Many senior centers or houses of worship also provide meals.

Source: National Institute on Aging

Exercise

Exercise has physical and mental benefits for people of any age, regardless of your current fitness level. Many experts contend that regular exercise is the single most important thing we can do to improve overall health and well-being and prevent disease. Exercise increases levels of brain chemicals that encourage the growth of nerve cells, which may be why aerobic activity enhances memory skills and why moderately strenuous physical activity is strongly associated with successful brain aging.

Physical activity can be enjoyed by everyone at little or no cost. It does not require health club membership, fancy machines, or spandex clothing. All it takes is a



little initiative. Even moderate physical activity can impart significant health benefits. Recent studies from the Centers for Disease Control show that getting about 30 minutes of exercise a day — even if it is in 10-minute bouts — for most days of the week can provide many of the same health benefits as far more strenuous activity. Day-to-day tasks such as gardening, walking the dog, and doing household chores count as moderate physical activity, so there's little excuse not to reap the rewards.

For the most well-rounded fitness program and the greatest benefits overall, the National Institute on Aging suggests incorporating four types of exercises into your life.

- Endurance exercises, such as walking and other aerobic activities,

What Can Regular Exercise Do for You?

- Increase self-esteem and self-confidence
- Reduce anxiety and stress
- Improve mood, may alleviate depression
- Improve sleep
- Increase energy
- May help maintain healthy sexual relations
- Decrease the risk of heart disease and help prevent risk factors such as obesity and high blood pressure
- May improve cholesterol levels
- Reduce body fat by increasing the body's calorie-burning efficiency
- Slow the rate of bone loss with age
- Enable the body to use insulin more efficiently
- Lower the risk of certain cancers, including cancers of the breast, uterus, and colon
- Improve cardiovascular health
- Help control weight and prevent obesity

Source: National Institute on Aging



which increase stamina and may help delay or prevent diabetes, heart disease, colon cancer, and stroke

- Strength exercises, done with free weights or resistance weights, which help control weight and regulate blood sugar by increasing metabolism, and may help prevent osteoporosis
- Flexibility exercises, such as stretching or yoga, which may prevent and aid recovery from injuries
- Balance exercises, such as standing on one foot, which can help prevent falls

Use common sense when increasing your physical activity. If you haven't exercised for a long time, start slowly and build up gradually. You don't need to be a marathon runner; a 10-minute walk around your neighborhood is a great way to start. Before you begin any new physical activity or exercise program, speak with your doctor about what is right for you.

Sleep Problems

We spend a third of our lives asleep. Sleep is as essential for well-being as food and water, though the question of why we sleep continues to be a subject of great debate among scientists. Some experts believe that sleep is critical for memory consolidation and information processing in the brain; others point out that sleep seems to be crucial to optimal functioning of the immune system.

It is a myth that older people need less sleep. Seven to eight hours of sleep is normally required by most adults, although some may need as few as five or as many as 10. As we age, according to the National Institute of Neurological Disorders and Stroke, we generally need about the same amount of sleep as we did in early adulthood. While sleep patterns do change as we age, disrupted sleep and waking up feeling tired are not normal parts of aging. Still, half of the people over 65 report problems with sleep, compared to about 15 percent of all adults. Poor sleep can have a negative impact on overall quality of life, causing severe distress and impairing alertness, concentration, or memory.



Temporary sleeplessness due to stress, illness, or changes in the environment affects many people, but in a small proportion of them, the problems don't go away. For such people, who may have what sleep experts call "conditioned" or "learned" insomnia, bedtime routines become triggers for sleeplessness.

Tips for Good Sleep Hygiene

- Exercise regularly, but not within a few hours of bedtime.
- Eat a balanced diet, and don't eat heavy meals before bedtime.
- Practice relaxation techniques at bedtime, such as deep breathing, visualization, or meditation.
- Avoid caffeine, nicotine, or alcohol in afternoon or evening hours.
- Set regular bedtime and waking hours.
- If you do not fall asleep within 20 minutes of going to bed, get up and do something else until you feel tired.
- Keep a sleep journal to keep track of activities, food and drink, emotional circumstances, or other factors that might influence how well you sleep.
- Keep a steady room temperature in your bedroom (not too warm).
- Avoid reading, conversation, or television watching in bed.
- Make the bedroom a safe place, with locks on the door, a smoke alarm, telephone, and good lighting within reach of the bed.
- If you snore, avoid sleeping on your back, and elevate your head.
- Get treatment for allergies, colds, or sinus problems.
- Wake up to the sun, or use bright lights in the morning to reset the body's biological clock.
- Do not lie in bed once awake in the morning.

Source: National Institute of Neurological Disorders and Stroke

Sleep problems are often associated with medical or psychiatric disorders. Particularly in men, the need to get up one to three times each night to urinate is the most common interruption of sleep. The trick is to recognize this sleep interruption as normal for you, and then return to sleep. Do not start worrying about yesterday or tomorrow.



Pain is another common reason for interruption of sleep. Leg cramps, back pain, and neck pain can all be culprits. Individuals have to experiment with what nighttime pain medications are best for them, but consult your doctor first.

Waking too early and not getting back to sleep may be a symptom of depression. This pattern of insomnia may be a “red flag” for depression.

Persistent changes in sleep patterns or difficulty sleeping should be discussed with your doctor. A number of medications that aid sleep are available, including over-the-counter remedies and prescription drugs (sedatives and antidepressants). Developing good sleep “hygiene” — habits to encourage restful sleep — is crucial for managing sleep problems. (See “Tips for Good Sleep Hygiene.”) Relaxation techniques, such as meditation, self-hypnosis, deep breathing, or visualization, may also be helpful in quieting the mind and body in preparation for sleep.

Sleep Disorder	Who is Affected	Common Features
Insomnia (almost always a symptom of another problem)	<ul style="list-style-type: none"> • 60 million Americans (40% of women; 30% of men) • Incidence increases with age 	<ul style="list-style-type: none"> • Taking a long time to fall asleep • Waking up many times each night • Waking up too early and not getting back to sleep • Waking up feeling tired
Obstructive Sleep Apnea	<ul style="list-style-type: none"> • 18 million Americans (most undiagnosed) • Associated with aging • More common in men 	<ul style="list-style-type: none"> • Loose tissue or sagging muscles block airflow to the lungs • Loud snoring, gasping, and repeated interruptions in breathing lasting up to a minute • Daytime drowsiness, irritability, sluggishness, poor concentration and memory
Restless Legs Syndrome	<ul style="list-style-type: none"> • 12 million Americans • Most common in elderly • Runs in families 	<ul style="list-style-type: none"> • Unpleasant crawling, prickling, or tingling sensations in the legs and feet • Urge to move legs to relieve the sensation • Leads to constant leg movement during the night
Narcolepsy	<ul style="list-style-type: none"> • 250,000 Americans • Usually hereditary 	<ul style="list-style-type: none"> • Frequent, unexpected sleep “attacks” during the day, even when nighttime sleep is normal • (In some cases) lack of muscle control in emotional situations; hallucinations; temporary paralysis when awakened; disrupted nighttime sleep

Source: National Institute of Neurological Disorders and Stroke

Common Sleep Problems

There are more than 70 different sleep disorders, and most can be managed effectively once they are recognized and accurately diagnosed. The most common ones are detailed on page 15.

Caregiving

Millions of Americans are caregivers — family members or friends who take primary responsibility for the care of loved ones who are ill or disabled and living at home. There is increasing evidence that caregiving exacts a huge physical, emotional, and financial toll on the caregiver, even though it can be a source of great personal satisfaction. The responsibility of making sure that all of a loved one's needs are fulfilled is often compounded by the emotional impact of watching the person suffer or possibly deteriorate in health.



Not surprisingly, caregivers almost invariably report high levels of stress. At least half of all caregivers juggle work, family, and caregiving responsibilities. In many cases, caregivers become isolated and lose touch with social contacts, which can worsen stress and have a negative impact on overall health.

Caregivers may have little time to take care of their own health or emotional needs, and they may find it difficult to take time for activities that they enjoy.

Many caregivers report significant personal health problems, ranging from minor complaints to serious, chronic disorders. A few studies have suggested that some caregivers may experience stress-induced health changes that may increase the risk of heart disease or cancer in susceptible individuals. A series of studies have linked the chronic stress of caregiving with impaired immune-system function, which makes the caregiver more susceptible to infectious conditions such as flu or colds, and may slow healing processes after an injury. In older caregivers, who may also be dealing with chronic health problems of their own, lowered immunity can be devastating.

A number of organizations are devoted to providing support, in many forms, for caregivers and the people in their care. If you or someone you know is a caregiver, recognize that there is help available. Taking care of the caregiver is essential, both for the caregiver's own sake and that of the person being cared for.



Coping with Caregiving

- Reserve some time and energy to take care of yourself.
- Ask for help from friends, family, or community or patient-support groups.
- Try to arrange schedules so that regular breaks can be taken.
- Ask your doctor's advice about how best to manage symptoms, perhaps by adjusting medications or ordering special equipment (e.g., hospital bed, portable toilet, etc.) to facilitate caretaking.
- Arrange for a home health aide, if possible, to help with certain duties or to enable you to take breaks (some insurance plans cover such services).
- Do not try to do everything on your own.
- Seek help if necessary in managing financial and legal matters related to caregiving.
- Join a support group for caregivers, and read about coping strategies and resources for getting help.

Source: Family Caregiver Alliance



Conclusion

By maintaining a healthy lifestyle no matter what our age is, we can take the reins of control and make an impact on our quality of life now and as we get older. Eating right, exercising, and getting a good night's sleep are critical, as always. Scientists are now beginning to understand that how we care for our brain's health throughout life is perhaps as important as any other factor in maintaining optimal quality of life, and we can put those findings to work in our own lives. By doing so, we can help make sure that we are among the majority of Americans who find good health and happiness in late life.

Resources

AARP

Tel: (888) OUR-AARP (888-687-2277) toll-free
www.aarp.org

Alliance for Aging Research

Tel: (202) 293-2856; Fax: (202) 785-8574
www.agingresearch.org

American Sleep Apnea Association

Tel: (202) 293-3650; Fax: (202) 293-3656
www.sleepapnea.org

American Academy of Sleep Medicine

Tel: (507) 287-6006; Fax: (507) 287-6008
www.aasmnet.org

Family Caregiver Alliance

Tel: (415) 434-3388; Fax: (415) 434-3508
www.caregiver.org

National Council on Aging

Tel: (202) 479-1200; Fax: (202) 479-0735
www.ncoa.org

National Institute on Aging

Tel: (301) 496-1752
www.nih.gov/nia

National Sleep Foundation

Tel: (202) 347-3471; Fax: (202) 347-3472
www.sleepfoundation.org

Well Spouse Foundation

Tel: (800) 838-0879; Fax: (212) 685-8676
www.wellspouse.org

Restless Legs Syndrome Foundation, Inc.

www.rls.org

The Dana Foundation

www.dana.org

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