

# NIH News in Health

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## Coping with Caregiving Take Care of Yourself While Caring for Others

It can be a labor of love, and sometimes a job of necessity. Millions of Americans provide unpaid care for someone with a serious health condition each year. These often-unsung heroes provide hours of assistance to others. Yet the stress and strain of caregiving can take a toll on their own health. NIH-funded researchers are working to

understand the risks these caregivers face. And scientists are seeking better ways to protect caregivers' health.

Many of us will end up becoming or needing a caregiver at some point in our lives. Chances are we'll be helping out older family members who can't fully care for themselves. Caregiving responsibilities can include everyday tasks, such as helping with meals, schedules, and bathing and dressing. It can also involve managing medicines, doctor visits, health insurance, and money. Caregivers often give emotional support as well.

People who provide unpaid care for an elderly, ill, or disabled family member or friend in the home are called informal caregivers. Most are middle-aged. Roughly two-thirds are women. Nearly half of informal caregivers assist someone who's age 75 or older. As the elderly population continues to grow nationwide, so will the need for informal caregivers.

Studies have shown that some people can thrive when caring for others. Caregiving may help to strengthen connections to a loved one. Some find joy, fulfillment, and a sense of being appreciated in looking after others. But for

many, the strain of caregiving can become overwhelming. Friends and family often take on the caregiving role without any training. They're expected to meet many complex demands without much help. Many caregivers hold down a full-time job and may also have children or others to care for.

"With all of its rewards, there is a substantial cost to caregiving—financially, physically, and emotionally," says Dr. Richard J. Hodes, director of NIH's National Institute on Aging. "One important insight from our research is that because of the stress and time demands placed on caregivers, they are less likely to find time to address their own health problems."

Informal caregivers, for example, may be less likely to fill a needed prescription for themselves or get a screening test for breast cancer. "Caregivers also tend to report lower levels of physical activity, poorer nutrition, and poorer sleep or sleep



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disturbance,” says Dr. Erin Kent, an NIH expert on cancer caregiving.

Studies have linked informal caregiving to a variety of long-term health problems. Caregivers are more likely to have heart disease, cancer, diabetes, arthritis, and excess weight. Caregivers are also at risk for depression or anxiety. And they’re more likely to have problems with memory and paying attention.

“Caregivers may even suffer from physical health problems related to caregiving tasks, such as back or muscle injuries from lifting people,” Kent adds.

Caregivers may face different challenges and risks depending on the health of the person they’re caring for. Taking care of loved ones with cancer or dementia can be especially demanding. Research suggests that these caregivers bear greater levels of physical and mental burdens than caregivers of the frail elderly or people with diabetes.

“Cancer caregivers often spend more hours per day providing more intensive care over a shorter period of time,” Kent says. “The health

of cancer patients can deteriorate quickly, which can cause heightened stress for caregivers. And aggressive cancer treatments can leave patients greatly weakened. They may need extra care, and their medications may need to be monitored more often.”

Cancer survivorship, too, can bring intense levels of uncertainty and anxiety. “A hallmark of cancer is that it may return months or even years later,” Kent says. “Both cancer survivors and their caregivers may struggle to live with ongoing fear and stress of a cancer recurrence.”

Dementia can also create unique challenges to caregivers. The health care costs alone can take an enormous toll. One recent study found that out-of-pocket spending for families of dementia patients during the last five years of life averaged more than \$60,000, which was 81% higher than for older people who died from other causes.

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Research has found that caregivers for people with dementia have particularly high levels of stress hormones. Caregivers and care recipients often struggle with the problems related to dementia, such as agitation, aggression, trouble sleeping, wandering, and confusion. These caregivers spend more days sick with an infectious disease, have a weaker immune response to the flu vaccine, and have slower wound healing.

One major successful and expanding effort to help ease caregiver stress is known as REACH (Resources for Enhancing Alzheimer’s Caregiver Health). Just over a decade ago, NIH-funded

researchers showed that a supportive, educational program for dementia caregivers could greatly improve their quality of life and reduce rates of clinical depression. As part of the program, trained staff connected with caregivers over six months by making several home visits, telephone calls, and structured telephone support sessions.

### Cancer survivorship, too, can bring intense levels of uncertainty and anxiety.

“REACH showed that what caregivers need is support. They need to know that there are people out there and resources available to help them,” says Dr. John Haaga, who oversees NIH’s behavioral and social research related to aging. REACH II, a follow-up intervention, was tailored for culturally diverse caregivers.

The REACH program is now being more widely employed. It’s been adapted for use in free community-based programs, such as in local Area Agencies on Aging. It’s also being used by the U.S. Department of Veterans Affairs and by the Indian Health Service, in collaboration with the Administration for Community Living.

“We know how to support families caring for an older adult. But that knowledge is not easily accessible to the families who need it,” says Dr. Laura Gitlin, a coauthor of

### Dementia can also create unique challenges for caregivers.

the REACH study and an expert on caregiving and aging at Johns Hopkins University. “Caregivers need to know it’s not only acceptable, but recommended, that they find time to care for themselves. They should consider joining a caregiver’s support group, taking breaks each day, and

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keeping up with their own hobbies and interests.”

To learn more about aging-related and dementia caregiver resources, contact NIH’s National Institute on Aging at 1-800-222-2225 or [niaic@nia.nih.gov](mailto:niaic@nia.nih.gov). To learn about cancer-related caregiver resources, contact NIH’s National Cancer Institute at 1-800-422-6237. See the Web Links box to find a variety of online caregiving resources. ■



## Wise Choices Self-Care for Caregivers

- **Get organized.** Make to-do lists, and set a daily routine.
- **Ask for help.** Make a list of ways others can help. For instance, someone might pick up groceries or sit with the person while you do errands.
- **Take breaks each day, and spend time with your friends.**
- **Keep up with your hobbies and interests.**
- **Join a caregiver’s support group.** Meeting other caregivers may give you a chance to exchange stories and ideas.
- **Eat healthy foods, and exercise as often as you can.**
- **See your doctor regularly.** Be sure to tell your health care provider that you’re a caregiver, and mention if you have symptoms of depression or sickness.
- **Build your skills.** Some hospitals offer classes on how to care for someone with an injury or illness. To find these classes, ask your doctor or contact your local Area Agency on Aging at [www.n4a.org](http://www.n4a.org).

## Web Links

For more about coping with caregiving, go to: [newsinhealth.nih.gov/special-issues/coping-caregiving](http://newsinhealth.nih.gov/special-issues/coping-caregiving)

# Osteoporosis in Aging Protect Your Bones with Exercise

Bones feel solid, but the inside of a bone is actually filled with holes like a honeycomb. Bone tissues are broken down and rebuilt all the time. While some cells build new bone tissue, others dissolve bone and release the minerals inside.

As we get older, we begin to lose more bone than we build. The tiny holes within bones get bigger, and the solid outer layer becomes thinner. In other words, our bones get less dense. Hard bones turn spongy, and spongy bones turn spongier.

If this loss of bone density goes too far, it’s called osteoporosis. More than 53 million people nationwide either already have osteoporosis or are at high risk due to weak bones.

It’s normal for bones to break in bad accidents. But if your bones are dense enough, they should be able to stand up to most falls. Bones weakened by osteoporosis, though, are more likely to break.

“It’s just like any other engineering material,” says Dr. Joan McGowan, an NIH expert on osteoporosis. If you fall and slam your weight onto a fragile bone, “it reaches a point where the structures aren’t adequate to support the weight you’re putting on them.”

Broken bones can lead to serious problems for seniors. The hip is a common site for osteoporosis, and hip fractures can lead to a downward spiral of disability and loss of independence. Osteoporosis is also common in the wrist and the spine.

The **hormone** estrogen helps to make and rebuild bones. A woman’s estrogen levels drop after menopause, and bone loss speeds up. That’s why osteoporosis is most common among older women. But



men get osteoporosis, too.

“A third of all hip fractures occur in men, yet the problem of osteoporosis in men is frequently downplayed or ignored,” says Dr. Eric Orwoll, a physician-researcher who studies osteoporosis at Oregon Health and Science University. Men tend to do worse than women after a hip fracture, Orwoll says.

Experts suggest that women start getting screened for osteoporosis at age 65. Women younger than age 65 who are at high risk for fractures should also be screened. Men should discuss screening recommendations with their health care providers.

Screening is done with a bone mineral density test at the hip and spine. The most common test is known as DXA, for dual-energy X-ray absorptiometry. It’s painless, like having an X-ray. Your results are often reported as a T-score,



## Definitions

### Hormone

Substance sent through the bloodstream to signal another part of the body to grow or react a certain way.



which compares your bone density to that of a healthy young woman. A T-score of  $-2.5$  or lower indicates osteoporosis.

There's a lot you can do to lower your risk of osteoporosis. Getting plenty of calcium, vitamin D, and exercise is a good start, Orwoll says.

Calcium is a mineral that helps bones stay strong. It can come from the foods you eat—including milk and milk products, dark green leafy vegetables like kale and collard greens—or from dietary supplements. Women over age 50 need 1,200 mg of calcium a day. Men need 1,000 mg a day from ages 51 to 70 and 1,200 mg a day after that.

Vitamin D helps your body absorb calcium. As you grow older, your body needs more vitamin D, which is made by your skin when you're in the sun. You can also get vitamin D from dietary supplements and from

certain foods, such as milk, eggs, fatty fish, and fortified cereals. Talk with your health care provider to make sure you're getting a healthy amount of vitamin D. Problems can arise if you're getting too little or too much.

Exercise, especially weight-bearing exercise, helps bones, too. Weight-bearing exercises include jogging, walking, tennis, and dancing. The pull of muscles is a reminder to the cells in your bones that they need to keep the tissue dense.

Smoking, in contrast, weakens bones. Heavy drinking does too—and makes people more likely to fall. Certain drugs may also increase the risk of osteoporosis. Having family members with osteoporosis can raise your risk for the condition as well.

The good news is, even if you already have osteoporosis, it's not too late to start taking care of your bones. Since your bones are rebuilding themselves all the time, you can help push the balance toward more bone growth by giving them exercise, calcium, and vitamin D.

Several medications can also help fight bone loss. The most widely used are bisphosphonates. These drugs are generally prescribed to people diagnosed with osteoporosis after a DXA test, or to those who've had a fracture that suggests their bones are too weak. Bisphosphonates have been tested more thoroughly in women, but are approved for men too.

Researchers are trying to develop drugs that increase bone growth. Two are now available that are related to parathyroid hormone, which helps the body use and store calcium. These drugs are approved to help build bone in people with osteoporosis who are at high risk for having a fracture.

Another important way to avoid broken bones is to prevent falling and occasions for fracture in the first place. Unfortunately, more than 2

million so-called fragility fractures (which wouldn't have happened if the bones had been stronger) occur nationwide each year. "To reduce the societal burden of fracture, it's going to take a combined approach of not only focusing on the skeleton but focusing on fall prevention," says Dr. Kristine Ensrud, a physician-researcher who studies aging-related disorders at the University of Minnesota and Minneapolis VA Health Care System.

Many things can affect the risk for a fall, such as how good a person's balance is and how many trip hazards are in the environment. The kind of fall matters, too. Wrist fractures often occur when a person falls forward or backward. "It's the active older person who trips and puts her hand out," McGowan says. Hip fractures often arise when a person falls to the side. Your hip may be strong enough to handle weight that goes up and down, but not an impact from another direction.

"That's why exercise that builds balance and confidence is very good at preventing fractures," McGowan says. For example, she says, tai chi won't provide the loads needed to build bone mass, but it can increase balance and coordination—and make you more likely to catch yourself before you topple.

NIH-funded researchers are looking for better ways to tell how strong your bones are, and how high your chances are of breaking a bone. For now, though, the DXA test is the best measure, and many seniors, even older women, don't get it, Ensrud says. If you're concerned about your bone health, she adds, "Ask your health care provider about the possibility of a bone density test." ■



## Wise Choices Prevent Falls To Protect Bones

To prevent falls at home:

- Keep rooms free of clutter, especially on floors.
- Don't walk in socks, stockings, or slippers.
- Be sure rugs have skid-proof backs or are tacked to the floor.
- Keep a flashlight next to your bed to guide you in the dark.

Exercises to improve balance:

- Stand on one leg at a time for a minute. Slowly increase the time. Try to balance with your eyes closed or without holding on.
- Stand on your toes for a count of 10, and then rock back on your heels for a count of 10.
- Move your hips in a big circle to the left, and then to the right. Do not move your shoulders or feet. Repeat five times.



## Web Links

For more about osteoporosis in aging, go to: [newsinhealth.nih.gov/special-issues/osteoporosis-aging](https://newsinhealth.nih.gov/special-issues/osteoporosis-aging)

# You're Never Too Old

## Keep Active as You Age

We've all heard that exercise is good for you. Did you know that it's as true for older people as it is for any age group? You're never too old to get moving, get stronger, and improve your health.

Fitting exercise and physical activity into your day can enhance your life in so many ways. Regular physical activity can improve your balance and boost or maintain your strength and fitness. It may also improve your mood and help you manage or lessen the impact of conditions like diabetes, heart disease, osteoporosis, and depression.

Despite these proven benefits, exercise and physical activity rates among older people are surprisingly low. Only about 30% of people ages 45 to 64 say they engage in regular leisure-time physical activity. This falls to 15% of those between the ages of 65 and 74 and 5% of people age 85 and older.

Experts recommend four types



### Wise Choices Benefits of Exercise

Exercise and physical activity can help you:

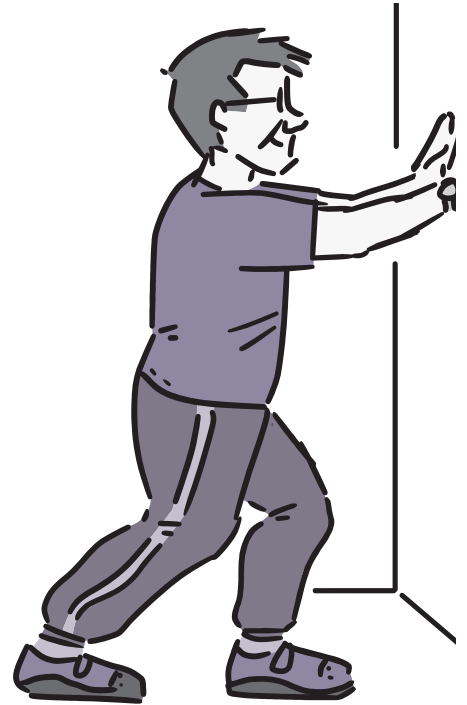
- Maintain and improve your physical strength and fitness.
- Improve your ability to do everyday things.
- Improve your balance.
- Manage and improve diseases like diabetes, heart disease, and osteoporosis.
- Reduce feelings of depression and may improve mood and overall well-being.
- Improve your ability to shift quickly between tasks, plan an activity, and ignore irrelevant information.

of exercise for older adults: endurance, balance, strength, and flexibility. Brisk walking, dancing, and other endurance exercises improve the health of your heart, lungs, and circulatory system. These exercises can make it easier for you to mow the lawn, climb stairs, and do other daily activities. Strength exercises include lifting weights or using resistance bands. They can increase muscle strength to help with activities such as carrying groceries or lifting grandchildren. Balance exercises can help prevent falls—a major health risk for older adults. Stretching, or flexibility exercises, can give you more freedom of movement for bending to tie your shoes or looking over your shoulder as you back out of the driveway.

“Even if you haven't been active previously, it's important to get started and stay active,” says Dr. Richard J. Hodes, director of NIH's National Institute on Aging. “We know that people want to live independently for as long as they possibly can. By exercising regularly and including more physical activity in their daily routine, older people can preserve their physical function, which is key to doing the everyday things they want to do.”

To help you get started and keep moving, NIH brought together some of the nation's leading experts on aging, exercise, and motivation. They developed a guide to exercise for older adults. The guide serves as the basis for a national exercise and physical activity campaign for people ages 50 and older. It's called *Go4Life*.

“Older adults can exercise safely, even those who have physical limitations,” Hodes says. “*Go4Life*



is based on studies showing the benefits of exercise and physical activity for older people, including those with chronic health conditions.”

*Go4Life* exercises are designed to be done safely at home without special equipment or clothing. The free book *Exercise & Physical Activity: Your Everyday Guide from the National Institute on Aging* is the core resource for the campaign. Other free materials, such as tip sheets, are also available. *Workout to Go*, a mini exercise guide, shows you how you can be active anytime, anywhere.

To learn more, visit the *Go4Life* website at [go4life.nia.nih.gov](http://go4life.nia.nih.gov). You'll find exercises, success stories, and tips to help you stay motivated. Or call 1-800-222-2225, or e-mail [niaic@nia.nih.gov](mailto:niaic@nia.nih.gov). ■



### Web Links

For more about exercise and aging, go to: [newsinhealth.nih.gov/special-issues/youre-never-too-old](http://newsinhealth.nih.gov/special-issues/youre-never-too-old)

# Feeling Out of Joint

## The Aches of Arthritis

Many people start to feel pain and stiffness in their joints as they get older, often when they're 45 to 50. It's called arthritis, and it's one of the most common diseases nationwide. You may think it's a disease of old age, but arthritis can affect young adults and even children. In recent years, scientists have made rapid progress in understanding the many causes of arthritis. They've also made significant strides in developing effective new treatments for many forms of the disease.

What exactly is arthritis? "Arthr" means joint, and "itis" means inflammation—heat, swelling, and redness. But the inflammation of arthritis isn't always something you can see.

"Some types of arthritis are very inflammatory and others aren't as much. But they all involve an element of inflammation," explains Dr. Joanne M. Jordan of the University of North Carolina at Chapel Hill.

Arthritis comes in many forms. In fact, there are more than 100 types, each with its own symptoms and treatments. The most common form of arthritis is osteoarthritis.

Osteoarthritis occurs when cartilage, the tissue that cushions the ends of the bones within the joints, breaks down and wears away. It most often affects the fingers, knees, and hips.

Osteoarthritis can follow injury to a joint. For example, years after a soccer injury to a knee, you might get osteoarthritis in the knee. Once you've had a severe joint injury, it's important to be careful about what kind of activities you do.

"You should be active because, ironically, being active can help prevent disease," says Dr. David Felson of Boston University. "But try not to be active in ways that can make your joint vulnerable to



injury again."

For the most part, researchers don't know a lot about how and why osteoarthritis occurs. Women tend to get it more often than men. You

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tend to get it as you get older.

"Many factors that affect osteoarthritis are things you can't control, like how old you are and what gender you are," Felson says.

But some risk factors are under your control, including your weight. "Even moderately overweight people have an increase in knee

osteoarthritis," says Felson.

Many treatments are available for osteoarthritis. Talk to your doctor about exercises that can help and activities you should avoid. Several pain and anti-inflammatory medicines are available by prescription or over the counter.

Perhaps the most promising treatments for osteoarthritis right now, Felson says, involve ways to block pain. Researchers are working on other approaches as well, including exercise routines and devices that alter the alignment of your joints. For severe cases of osteoarthritis, scientists have developed improved surgeries to replace knees and hips.

Another common type of arthritis is gout. Gout usually affects the big toe, but many other joints may be involved. It's caused by needle-like crystals that build up in the joints.

People with gout might try to avoid certain foods—including liver, beef, anchovies, and meat gravy—



because they can bring on a gout attack in some people. These foods are rich in molecules called purines, which break down in your body and can ultimately contribute to crystal formation. Drinking alcohol, being overweight, and taking certain medications may make gout worse. In older people, some blood pressure medicines can also increase the chance of a gout attack.

Your doctor might do blood tests and X-rays to find out if you have gout. If you are diagnosed with gout, it can be treated several different

**Another common type of arthritis is gout. Gout usually affects the big toe, but many other joints may be involved. It's caused by needle-like crystals that build up in the joints.**

ways, often in combination.

A very different type of arthritis is called rheumatoid arthritis. In contrast to osteoarthritis and gout, which affect particular joints, rheumatoid arthritis can affect your whole body. It arises when your **immune system** mistakenly attacks your own joints. That can bring pain, swelling, stiffness, and loss of function in joints and bones—most often in the hands and feet. Rheumatoid arthritis may



## Definitions

### Immune System

The system that protects your body from invading viruses, bacteria, and other microscopic threats.

### Genes

Stretches of DNA, a substance you inherit from your parents, that define characteristics such as how likely you are to get certain diseases.

also affect your internal organs and systems. You might feel sick or tired or have a fever.

Laboratory tests for certain immune system activity can confirm whether you have rheumatoid arthritis. The good news is that now there are medications not only to control pain and inflammation, but to actually slow or stop damage to your joints.

A lot of new treatments that have come out in the past 10 to 15 years have revolutionized the treatment of rheumatoid arthritis," Jordan says.

Some rheumatoid arthritis medications interfere with the immune system's activity. By interrupting the events that lead to inflammation, these medications help block inflammation and prevent structural damage to the joints.

"If you're concerned you have rheumatoid arthritis, it's important to see a doctor fairly soon," Felson advises. "Your joints can be damaged by the process of arthritis, and that damage cannot be reversed, so it's important to get treatment as early as possible."

Researchers continue to explore what causes arthritis. A better understanding of the factors involved might lead to new treatment approaches. **Genes** play a significant role in many types of arthritis. For example, scientists have linked certain immune system genes with a tendency to develop rheumatoid arthritis. Genes involved in how uric acid is processed have been tied to gout.

For osteoarthritis, Jordan estimates that up to 30% to 60% of your risk may lie in the genes you inherited from your parents. "The tricky part, though, is that it's not a single gene," Jordan explains. "It's a lot of different genes that interact with each other and with the environment to cause the disease."

Researchers are also looking at other risk factors, such as job-related exposures and heavy metals,

such as lead, in the environment. They've been developing better ways of looking inside joints as well.

If you feel pain and stiffness in your joints, don't hesitate to bring it up with your doctor. The sooner you act, the better you can prevent damage to your joints. Find out what's causing your problems now and learn about your options. ■



## Wise Choices Arthritis Tips

Arthritis can damage not only your joints, but also internal organs and skin. Talk to your doctor about what you can do. Here are some ideas:

- Try to keep at a healthy weight that's normal for your height.
- Exercise. A health professional can show you how to move more easily. Going for a walk every day will help, too.
- If you had a severe joint injury, be careful about protecting it during future activities.
- Don't smoke. People who smoke are more likely to get rheumatoid arthritis, and their symptoms tend to be worse.
- Take your medicines when and how you are supposed to. They can help reduce pain and stiffness.
- Try taking a warm shower in the morning.



## Web Links

For more about arthritis, go to: [newsinhealth.nih.gov/special-issues/feeling-out-joint](https://newsinhealth.nih.gov/special-issues/feeling-out-joint)

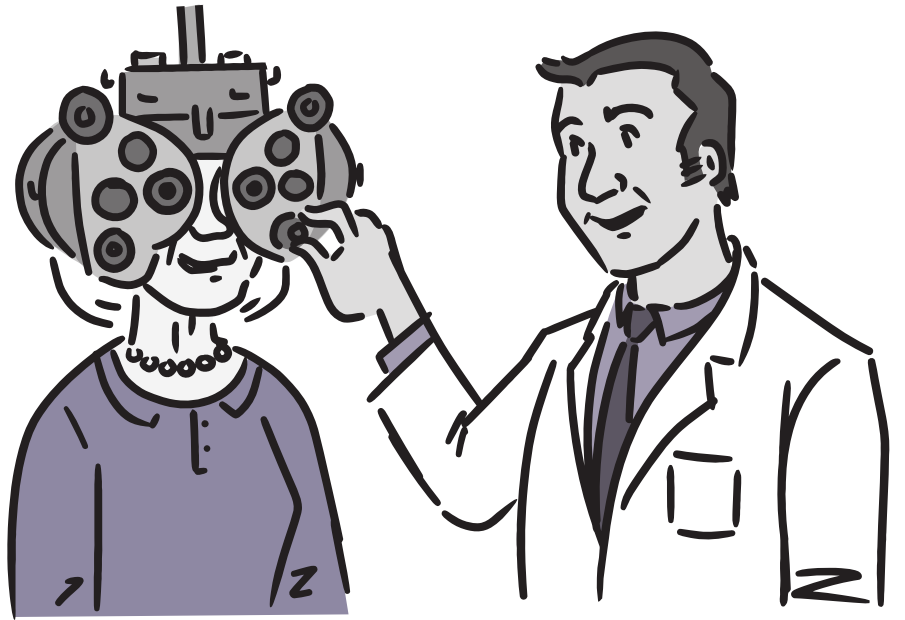
# Your Aging Eyes

## How You See as Times Go By

You may barely notice the changes at first. Maybe you've found yourself reaching more often for your glasses to see up close. You might have trouble adjusting to glaring lights or reading when the light is dim. You may even have put on blue socks thinking they were black. These are some of the normal changes to your eyes and vision as you age.

As more Americans head toward retirement and beyond, scientists expect the number of people with age-related eye problems to rise dramatically. You can't prevent all age-related changes to your eyes. But you can take steps to protect your vision and reduce your risk for serious eye disease in the future. Effective treatments are now available for many disorders that may lead to blindness or visual impairment. You can also learn how to make the most of the vision you have.

"Vision impairment and blindness are among the top five causes of



disability in older adults," says Dr. Cynthia Owsley, an eye researcher at the University of Alabama at Birmingham. Vision changes can make it difficult to perform everyday activities, such as reading the mail, shopping, cooking, walking safely, and driving. "Losing your vision may not be life-threatening, but it certainly affects your quality of life," Owsley says.

Eventually, age-related stiffening and clouding of the lens affects just about everyone. You may have trouble focusing on up-close objects, a condition called presbyopia. Anyone over age 35 is at risk for presbyopia.

"You might find you're holding your book farther away to read it. You might even start thinking your arms just aren't long enough," says Dr. Emily Chew, a clinical researcher at NIH's National Eye Institute. "A good and simple treatment for presbyopia is reading glasses."

Cloudy areas in the lens, called cataracts, are another common eye problem that comes with age. More than 24 million Americans have cataracts. By age 75, more than half of us will have had them. Some cataracts stay small and have little effect on eyesight, but others become large and interfere with vision. Symptoms include blurriness, difficulty seeing well at night, lights that seem too bright and faded color vision. There are no specific steps to prevent cataracts, but tobacco use and exposure to sunlight raise your risk of developing them.



### Wise Choices Protect Your Vision

- Have a comprehensive eye exam each year after age 50.
- Stop smoking.
- Eat a diet rich in green, leafy vegetables and fish.
- Exercise.
- Maintain normal blood pressure.
- Control diabetes if you have it.
- Wear sunglasses and a brimmed hat any time you're outside in bright sunshine.
- Wear protective eyewear when playing sports or doing work around the house that may cause eye injury.

The clear, curved lens at the front of your eye may be one of the first parts of your body to show signs of age.

The clear, curved lens at the front of your eye may be one of the first parts of your body to show signs of age. The lens bends to focus light and form images on the **retina** at the back of your eye. This flexibility lets you see at different distances—up close or far away. But the lens hardens with age. The change may begin as early as your 20s, but it can come so gradually it may take decades to notice.



Cataract surgery is a safe and common treatment that can restore good vision.

The passage of time can also weaken the tiny muscles that control your eye's **pupil** size. The pupil becomes smaller and less responsive to changes in light. That's why people in their 60s need three times more light for comfortable reading than those in their 20s. Smaller pupils make it more difficult to see at night.

Trouble seeing at night can affect many daily activities, including

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**Cloudy areas in the lens, called cataracts, are another common eye problem that comes with age.**

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your ability to drive safely. Loss of peripheral vision increases your risk for automobile accidents, so you need to be more cautious when driving.

"Keeping older adults active and on the road as drivers, as long as they're safely able to do so, is considered important to their health and psychological well-being," says Owsley. But she notes that tests for



## Definitions

### Retina

Light-sensitive tissue at the back of your eye that converts light into electrical signals that travel to your brain.

### Pupil

The round, black-looking opening that lets light into your eye. It gets smaller in bright light and larger in dim light.

### Optic Nerve

The largest sensory nerve of the eye. It carries signals for sight from the retina to the brain.

motor vehicle licenses tend to focus on visual acuity—how well you can read the letters on an eye chart.

"Visual acuity tests may not be the best way to identify drivers at risk for crashes," she says. "Other issues are also important, like contrast sensitivity, your peripheral vision and your visual processing speed—how quickly you can process visual information and make decisions behind the wheel."

Owsley and her colleagues measured car crashes among a group of 2,000 drivers, 70 years old and older, over a period of three years. They found that a reduced field of vision and slowed processing speed both increased collision risk. Their research is helping to identify screening tests that can better predict safe or dangerous driving.

If you're not convinced you should have regular eye exams, consider that some of the more serious age-related eye diseases—like glaucoma, age-related macular degeneration (AMD) and diabetic eye disease—may have no warning signs or symptoms in their early stages.

Glaucoma comes from damage to the **optic nerve**. "Glaucoma can slowly steal your peripheral vision. You may not notice it until it's advanced," says Chew. It can be treated with prescription eye drops, lasers, or surgery. If not treated, however, it can lead to vision loss and blindness.

AMD causes gradual loss of vision in the center of your eyesight. "AMD is the leading cause of blindness in Americans over age 65," says Chew.

A large NIH-supported clinical study by Chew and others found that a specific combination of vitamins and minerals can prevent AMD from progressing to a more severe form. Scientists also found that people who eat diets rich in green, leafy vegetables—such as kale and spinach—or fish are less likely to have advanced AMD. A large study of 4,000 AMD patients failed to show a benefit from

fish oil supplements. However, vitamin/mineral supplements—especially those containing lutein and zeaxanthin, which are found in green leafy vegetables—slows progression to vision-threatening late AMD.

Diabetic eye disease, another leading cause of blindness, can damage the tiny blood vessels inside the retina. Keeping your blood sugar under control can help prevent or slow the problem.

The only way to detect these

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**AMD causes gradual loss of vision in the center of your eyesight.**

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serious eye diseases before they cause vision loss or blindness is through a comprehensive dilated eye exam. Your eye care professional will put drops in your eyes to enlarge, or dilate, the pupils and then look for signs of disease. "Having regular comprehensive eye care gives your doctor a chance to identify a problem very early on and then treat it," says Owsley. Annual eye exams are especially important if you have diabetes.

"Many of the healthy behaviors that help reduce your risk for long-term diseases, like heart disease and cancer, can also help to protect your eyesight," says Owsley. These include not smoking, eating a healthy diet, and controlling conditions like diabetes and high blood pressure. "It's nice to know that healthy living not only adds years to your life, but also protects your vision as you get older," Owsley says. ■



## Web Links

For more about aging eyes, go to: [newsinhealth.nih.gov/arthritis/your-aging-eyes](https://newsinhealth.nih.gov/arthritis/your-aging-eyes)

# Talking With Your Doctor

## Make the Most of Your Appointment

Patients and health care providers share a very personal relationship. Doctors need to know a lot about you, your family, and your lifestyle to give you the best medical care. And you need to speak up and share your concerns and questions. Clear and honest communication between you and your physician can help you both make smart choices about your health.

Begin with some preparation. Before your health exam, make a list of any concerns and questions you have. Bring this list to your appointment, so you won't forget anything.

Do you have a new symptom? Have you noticed side effects from your medicines? Do you want to know the meaning of a certain word? Don't wait for the doctor to bring up a certain topic, because he or she may

not know what's important to you. Speak up with your concerns.

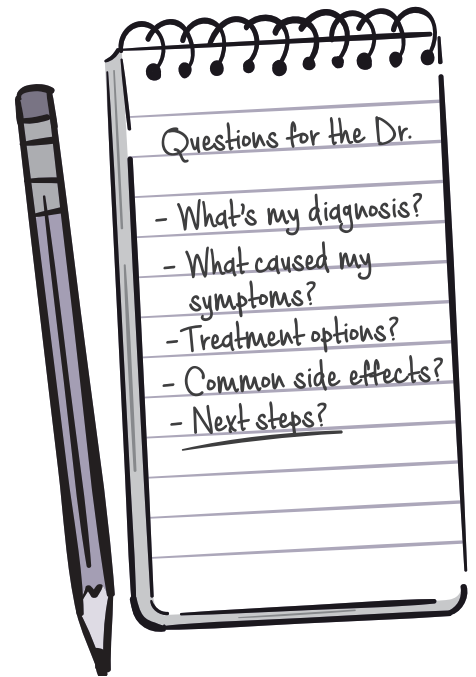
"There's no such thing as a dumb question in the doctor's office," says Dr. Matthew Memoli, an infectious disease doctor at NIH. "I try very hard to make my patients feel comfortable asking questions, no matter how dumb they think the question is."

Even if the topic seems sensitive or embarrassing, it's best to be honest and upfront with your health care provider. You may feel uncomfortable talking about sexual problems, memory loss, or bowel issues, but these are all important to your health. It's better to be thorough and share a lot of information than to be quiet or shy about what you're thinking or feeling. Remember, your doctor is used to talking about all kinds of personal matters.

Consider taking along a family member or friend when you visit the doctor. Your companion can help if there are language or cultural differences between you and your doctor. If you feel unsure about a topic, the other person can help you describe your feelings or ask questions on your behalf. It also helps to have someone else's perspective. Your friend may think of questions or raise concerns that you hadn't considered.

Many people search online for health information. They use Web-based tools to research symptoms and learn about different illnesses. But you can't diagnose your own condition or someone else's based on a Web search.

"As a physician, I personally have no problem with people looking on the Web for information, but they should use that information not as a way to self-diagnose or make decisions, but as a way to plan their visit with the doctor," says Memoli. Ask your doctor to recommend specific websites or resources, so you



know you're getting your facts from a trusted source. Federal agencies are among the most reliable sources of online health information.

Many health care providers now use electronic health records. Ask your doctor how to access your records, so you can keep track of test results, diagnoses, treatment plans, and medicines. These records can also help you prepare for your next appointment.

After your appointment, if you're uncertain about any instructions or have other questions, call or email your health care provider. Don't wait until your next visit to make sure you understand your diagnosis, treatment plan, or anything else that might affect your health.

Your body is complicated and there's a lot to consider, so make sure you do everything you can to get the most out of your medical visits. ■



### Wise Choices

#### Tips for Your Doctor Visit

- Write down a list of questions and concerns before your exam.
- Consider bringing a close friend or family member with you.
- Speak your mind. Tell your doctor how you feel, including things that may seem unimportant or embarrassing.
- If you don't understand something, ask questions until you do.
- Take notes about what the doctor says, or ask a friend or family member to take notes for you.
- Ask about the best way to contact the doctor (by phone, email, etc.).
- Remember that other members of your health care team, such as nurses and pharmacists, can be good sources of information.



### Web Links

For more about talking with your doctor, go to: [newsinhealth.nih.gov/arthritis/talking-your-doctor](https://newsinhealth.nih.gov/arthritis/talking-your-doctor)

# Dealing with Dementia

## When Thinking and Behavior Decline

Forgetfulness, temporary confusion, or having trouble remembering a name or word can be a normal part of life. But when thinking problems or unusual behavior starts to interfere with everyday activities—such as working, preparing meals, or handling finances—it's time to see a doctor. These could be signs of a condition known as dementia.

Dementia is a brain disorder that most often affects the elderly. It's caused by the failure or death of nerve cells in the brain. Alzheimer's disease is the most common cause. By some estimates, about one-third of people ages 85 and older may have Alzheimer's. Although age is the greatest risk factor for dementia, it isn't a normal part of aging. Some people live into their 90s and beyond with no signs of dementia at all.

"Dementia really isn't a disease itself. Instead, dementia is a group of symptoms that can be caused by many different diseases," says Dr. Sanjay Asthana, who heads an NIH-supported Alzheimer's disease center at the University of Wisconsin. "Symptoms of dementia can include problems with memory, thinking, and language, along with impairments to social skills and some behavioral symptoms."

Several factors can raise your risk for developing dementia. These include aging, smoking, uncontrolled diabetes, high blood pressure, and drinking too much alcohol. Risk also increases if close family members have had dementia.

Symptoms of dementia might be reversed when they're caused

by dehydration or other treatable conditions. But most forms of dementia worsen gradually over time, and there is no treatment. Scientists are searching for ways to slow down this process or prevent it from starting in the first place.

The two most common causes of dementia in older people are Alzheimer's disease and vascular dementia, a condition that involves changes to the brain's blood supply. Vascular dementia often arises from **stroke** or arteriosclerosis (hardening of the arteries) in the brain. Other causes of dementia include Parkinson's disease, HIV, head injury, and Lewy body disease. (Lewy bodies are a type of abnormal protein clump in brain cells.)

Dementia in people under age 60 is often caused by a group of brain diseases called frontotemporal disorders. These conditions begin in the front or sides of the brain and gradually spread. A rare, inherited form of Alzheimer's disease can also occur in people in their 30s, 40s, and 50s.

The symptoms of dementia can vary, depending on which brain regions are damaged. "In general, the left side of the brain is involved in language, and the right side is very involved in social behavior," says Dr. Bruce L. Miller, who directs an NIH-funded dementia center at the University of California, San Francisco.

In the case of a frontotemporal disorder, "if it begins in the left side of the brain, you tend to have worsening language problems; if it starts on the right, it affects behavior and might be mistaken for a psychiatric condition," Miller explains. Damage to specific brain regions can cause people to become apathetic, lose their inhibitions, or show no consideration for the feelings of others.



With Alzheimer's disease, memory-related areas in the lower and back parts of the brain tend to be affected first. Other types of dementia can affect regions that control movement.

"The treatment for all of these disorders is slightly different," Miller says. That's why it's important to get an accurate diagnosis.

Because different types of dementia can have overlapping symptoms, and some people have more than one underlying condition, it's best to see a clinician who has expertise in diagnosing dementia. "NIH has specialized centers across the country that have clinics that can diagnose and evaluate patients with Alzheimer's disease and dementia," Asthana says. (See NIH's Alzheimer's Disease Research Centers for more information at [www.nia.nih.gov/health/alzheimers-disease-research-centers](http://www.nia.nih.gov/health/alzheimers-disease-research-centers).)

To make a diagnosis, physicians usually ask about a person's medical history and do a physical exam including blood tests. They also check for thinking, memory and language abilities, and sometimes order brain scans. This evaluation will determine if the symptoms are related to a treatable condition—such as depression, an infection, or



### Definition

#### Stroke

When normal blood flow to the brain fails, often due to blocked or broken blood vessels.



medication side effects.

With some types of dementia, a clear diagnosis can't be made until the brain is examined after death. "There's no single blood test or brain scan that can diagnose Alzheimer's disease or some other types of dementia with certainty," Asthana says. "In these cases, a definite diagnosis can be made only at autopsy."

More than a decade ago, NIH-supported scientists found a way to detect signs of Alzheimer's disease in the brains of living people. All people with Alzheimer's disease have abnormal protein clumps known as amyloid plaques. These plaques can be seen in Positron Emission Tomography (PET) scans using special tracers that bind specifically to amyloid. But extensive plaque buildup can also be found in some people who have no signs of dementia. Because of this uncertainty, amyloid imaging isn't considered a definitive tool for diagnosing Alzheimer's disease. NIH supported researchers have been working on other techniques, but

none of these have proven definitive.

"Right now, a lot of research is focusing on the pre-symptomatic stages of the disease, where we can see evidence of amyloid protein before a person has any symptoms. We can test to see if medications can slow or prevent buildup of this amyloid protein," Asthana says. "So far, no studies have shown that clearing the brain of amyloid protein can actually translate into significantly improved symptoms."

Different approaches are now being studied as treatments for Alzheimer's disease, Parkinson's dementia, and certain other forms of dementia. Currently approved medications may improve symptoms, but none can halt or reverse progressive damage to the brain.

"In contrast, if the dementia is due to vascular disease, there are many things we can do to prevent it from progressing. It's the same things we do to prevent cardiovascular disease," says Dr. Helena Chui, director of an NIH-funded Alzheimer's center at the University

of Southern California. "Some people with vascular dementia are given anticlotting medications. Others are given medications to keep blood pressure, cholesterol, and diabetes under control."

Chui notes that a healthy lifestyle can help protect the aging brain. "Regular exercise, a heart-healthy diet, and avoiding smoking can reduce your risk for heart disease as well as dementia," she says. Engaging in social and intellectually stimulating activities might also help to protect brain function. "You can change your trajectory toward a healthier brain by making healthy choices," Chui says. ■



## Featured Website

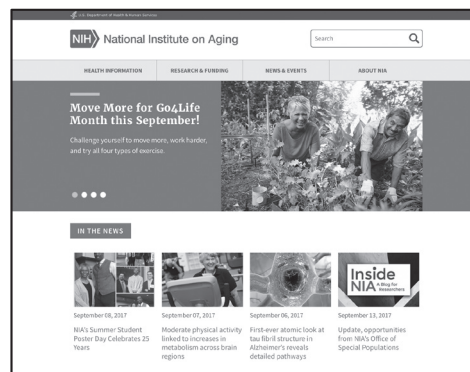
### National Institute on Aging

[www.nia.nih.gov](http://www.nia.nih.gov)

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Get information on more than 100 healthy aging topics with your phone, tablet, or desktop computer.

Search for what you're looking for or browse a list of health topics at [www.nia.nih.gov/health](http://www.nia.nih.gov/health). Order print publications about aging at [order.nia.nih.gov](http://order.nia.nih.gov).



## Wise Choices

### Signs of Dementia

- Repeating the same story or question over and over.
- Getting lost in familiar places.
- Delusions or agitated behavior.
- Problems with language, movements, or recognizing objects.
- Memory or concentration problems.
- Difficulty following directions.
- Getting disoriented about time, people, and places.
- Neglecting personal safety, hygiene, and nutrition.



## Web Links

For more about dementia, go to: [newsinhealth.nih.gov/special-issues/dealing-dementia](http://newsinhealth.nih.gov/special-issues/dealing-dementia)

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