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Tools that help when it's hard to see

Assistive devices can empower you and promote independence.

Your grandfather's best defense against daily vision struggles might have been a magnifying glass or a pair of eyeglasses. The tools at your disposal are vastly different, with sophisticated computers and artificial intelligence making up for vision impairment in ways Gramps could only imagine. "Advances in technology have revolutionized what people with vision impairment can do, especially in the last 20 years," says Alex Bowers, an associate scientist at the Schepens Eye Research Institute at Harvard-affiliated Massachusetts Eye and Ear. She's investigating new ways to help people make the most of their remaining vision.

Illustration courtesy of Be My Eyes

Some apps connect you to people who can describe what you're looking at, read text, or help you navigate.

Today's basics

Most smartphones, tablets, laptops, and desktop computers have built-in tools that can help people with vision impairment. These accessibility features can enlarge the text or cursor size, adjust a screen's contrast, zoom in for a close-up of anything on screen, turn speech into text, and read information (such as documents, texts, emails, or calendars) out loud.

Most devices (including smart speakers) also have built-in digital assistants that understand voice commands and can complete tasks for you. For example, you can tell a digital assistant to make a phone call, look up information online, place a grocery order, give you directions, send an email or text message, type out information in a document, play music, read you a book, or operate other smart home devices (such as lights, thermostats, appliances, or home security systems).

Apps that help

"There are perhaps 100 or more apps that are designed specifically to help people with vision impairments," Bowers says. They can perform a wide variety of tasks, such as the following.

Describing what you are looking at. Some apps can say out loud what your smartphone camera is seeing. For example, the Seeing AI app can identify products, people, or currency; describe the scene in front of you; or read text and handwriting. (If you don't have a smartphone, OrCam MyEye does the same thing using a small camera that clips onto your eyeglasses.) Other apps, such as Be My Eyes or Aira, connect you to a live person who can tell you in real time what you're seeing. "You can use it in all sorts of situations. Maybe you're in a train station and can't figure out which way to go, or you need assistance shopping in a grocery store," Bowers says.

Magnifying images. Smartphones come with built-in magnifier apps. You can also download special magnifier apps, such as SuperVision+ (developed by Massachusetts Eye and Ear Associate Scientist Gang Luo), that magnify and stabilize images. "That's important if your hand is shaking but you need to read medication directions or the fine print on a bill," Bowers says.

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ASK THE DOCTOR

by **ANTHONY L. KOMAROFF, M.D.**, *Editor in Chief*

Why won't my primary care doctor oversee my hospital care?

Q *My doctor says he'll no longer be the one responsible for my care if I need to be hospitalized. Instead, hospital doctors will be responsible. Why is that?*

A In the United States over the past 20 years, a new type of doctor—the hospitalist—has increasingly become responsible for the care of many patients in the hospital. While it's new in the United States, this has been the model for a long time in many other countries.

For many years, in our practice of primary care internal medicine, whenever our patients were hospitalized, we were the primary care doctors responsible for them—unless they had surgery or needed to be in an intensive care unit. When our patients got sick enough to require hospitalization, they liked having a doctor they knew.

But it was an increasingly difficult thing for my colleagues and me to do: it's hard to be in two places at once, in the office seeing patients and also up on the floors of the hospital where some of your patients were. If your patient was having a crisis, you had to be at their bedside now—even if your office schedule was full for the next three hours. Moreover, while our office practice is in a clinic at the hospital, just an elevator away from the hospitalized patients, many of our colleagues had offices outside the hospital. They were separated from their hospitalized patients by traffic.

There was another problem, too. As the amount of medical knowledge grew, and the number of new technologies to care for hospitalized patients grew, it was harder for the primary care doctor to keep up.

So, increasingly, hospitalist doctors who are present in the hospital 24 hours a day take care of hospitalized patients, often in consultation with the patients' primary care doctors. It's not a perfect solution: while the primary care doctor may have known the patient for decades, the hospitalist rarely knows the patient at all. The patient's medical record is often readily available to the hospitalist, but that record can be very thick. Even when the hospitalist has mastered all the detail in that record, it's not the same thing as "knowing" the human being who has just become their patient.

Hospitalists can take over for primary care doctors in a hospital.

© Chris Ryan | Getty Images

More young graduating doctors are choosing to be hospitalists, and fewer are choosing to be primary care doctors. In my opinion, the increasing number of hospitalists is a good thing. And there are studies suggesting it's improving the quality and efficiency of hospital care. But I also worry that the future will bring a shortage of primary care doctors—the doctors who know you, who have seen you through thick and thin, whose face you recognize and advice you trust when they arrive at your hospital bed in a moment of crisis.

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Caregivers: You deserve a break

Consider respite care options so you can recharge and remain in your caregiving role.

Being a caregiver, while profoundly important and meaningful, can lead to health risks.

Being a caregiver for a family member—particularly for someone with substantial needs—is a labor of love. Whether you're caring for a spouse, parent, adult child, grandchild, or another family member, the job has high demands, grueling hours, no pay, little time for yourself, and, in some cases, health risks. "Meeting a loved one's needs can come at the cost of the caregiver's own well-being. While the role can be deeply satisfying, it can also lead to burnout and risks for high blood pressure, fatigue or sleep problems, depression, isolation, significant weight loss or weight gain, and even premature death," explains Marie Clouqueur, a therapist and geriatric case manager in the Division of Geriatrics at Harvard-affiliated McLean Hospital.

You need a breather now and then—to exercise, go to doctor appointments, see friends, or simply recharge—to maintain your equilibrium and have the strength to continue as a caregiver. The way to do that is with respite care.

What is respite care?

Respite care involves a substitute caregiver giving you a break. It can last for just a few hours or as much as a few weeks. Respite care might come from a family member or friend who volunteers to help out. Or it can come from outside services such as adult or child day care centers, short-term stays (seven to 30 days) in a skilled nursing or memory care facility, professional child care services, or private duty care.

A private duty care agency can send someone to be with your loved one up to 24 hours per day. Agencies can provide several types of professionals for adult or pediatric care, depending on your loved one's needs: a registered nurse; a licensed health aide who can provide hands-on physical care (such as help bathing, eating, or using the bathroom); or a companion, who can help with meal preparation, light housework, or transportation. (A companion for healthy children falls under professional child care.)

Costs

Respite care can be expensive. For example, the national rate for private duty care workers is about $26 per hour. It's $12 to $20 for professional child care. A temporary stay at a nursing home might run about $200 per day.

Many nonprofit groups (such as senior centers and religious organizations) offer volunteer respite care services. And there are hundreds of organizations—including federal and state governments, the Veterans Administration, and nonprofits (such as Easterseals)—that offer financial assistance for respite care. The pots of money are often small and restricted, and eligibility requirements vary.

Finding respite care

Several government and nonprofit organizations can help you find respite care (and potential funding) that suits your needs. The primary places to call are your state's Lifespan Respite Coalition, your local Area Agency on Aging, and (for veterans) the U.S. Department of Veterans Affairs.

When you contact an agency, be specific about what you want. "These agencies offer a lot of services, and you want to get the right person. Ask for the caregiver coordinator. When you speak to the coordinator, explain that you need a break and you're looking for respite care and a way to pay for it," suggests Jill Kagan, director of ARCH National Respite Network and Resource Center. ARCH is a national resource program that can guide you to respite services in your area. Its website (www.archrespite.org/respitelocator) has information and links for all of the agencies we've mentioned.

Transitions

Having someone substitute for you as a caregiver can feel uncomfortable at first. Here are three issues that often come up, and ways to cope with them.

Concern for your loved one's well-being. Check the caregivers' credentials and spell out what you want them to do. "Be clear about your loved one's needs, ask if the program can accommodate them, how you'll know if caregivers are actually following your instructions, how often you'll hear from them, and how often you can contact them," Clouqueur says. For more questions to ask, visit www.health.harvard.edu/rcf.

Difficulty breaking the news. You may wonder how to explain respite care to your loved one. "Tell them what your goal is for this care. For adult day care, you could say, 'You're going to a place with peers who want to meet you and get to know you, where you can do some enjoyable activities together.' For private duty care, you could say, 'I'm bringing in someone who can make sure you're comfortable and find interesting things for you to do while I'm gone,'" Clouqueur says.

Guilt about leaving. It's normal to feel guilty about getting time to yourself. "Consider it an experiment, and look at the outcome. Did the benefits of respite care outweigh the costs and feelings of guilt?" Clouqueur asks. "Taking a break can help you restore a sense of who you are, and allow you to bring your 'best self' back to your role as a caregiver."

Preparing your feet for summer

Strengthening the muscles in your feet and learning about pain relief fixes will help keep you active this summer.

Flip-flops, crop tops, and backyard barbecues: they're all signs of summer. Foot pain isn't a welcome part of that picture, but it will be a reality for many people in the coming season. "We often see people develop problems when they wear sandals or go barefoot, or when they increase their activities after being less active during the colder months," says Dr. Adam Tenforde, a sports medicine specialist at Harvard-affiliated Spaulding Rehabilitation Hospital. Fortunately, there's time to get your feet ready for the challenges that come with warm, sunny days and increased outdoor activities.

Prepare now

It's especially important to be proactive about foot pain if you've had a particular foot condition in the past or a risk factor such as obesity, diabetes, or thyroid disease. You may want to visit your foot doctor for a check-up. You can also consider the following steps.

Get the right equipment. This is the time to shop for shoes with the right support for your summer activities (most flip-flops don't fill the bill), whether it's playing sports, sightseeing, or standing for long periods. Look for shoes with large (or open) toe boxes that don't crowd the toes, laces or a backstrap to provide stability for the foot, and good arch support.

Seek physical therapy. A new trend in foot treatment strengthens the small muscles in the "foot core." "Just wearing supportive shoes won't make pain go away," Dr. Tenforde says. "A physical therapist trained in foot core strengthening can help you learn to engage the muscles in the feet, which will help to relieve tension in the ligaments." You can watch a video on foot core strengthening that Dr. Tenforde and his colleagues published in the *Video Journal of Sports Medicine* at www.health.harvard.edu/noms-hl.

Make a gradual change. If you want to wear sandals with less support than your regular shoes, or if you'll soon be walking barefoot on a beach, get your feet ready for the change. "Wear slightly less supportive shoes at home, and then shoes with even less support. This will give your feet time to adapt and get stronger," Dr. Tenforde says.

Learn some quick fixes

If foot pain does strike, address it as soon as possible to keep it from getting worse. The following remedies can provide fast, temporary relief.

Hot and cold therapy. Try this with foot baths. Fill one small basin with warm water and another with cool (not freezing) water. "Swirl your feet around in the warm water for 10 minutes. It will help open the blood vessels and promote blood flow, bringing nutrients to sore foot muscles. Then, swirl your feet in cool water for 10 minutes. That will make the blood vessels narrow and reduce inflammation and swelling," Dr. Tenforde says.

Topical medication. For foot pain and swelling, use a nonsteroidal anti-inflammatory drug (NSAID) in a topical form, such as diclofenac (Voltaren), which inhibits substances in the body that cause pain and inflammation. If you just have foot pain, try a cream or gel that contains either menthol or lidocaine, or both, which interrupt pain signals in the nerves. As with any medicine, creams with NSAIDs or lidocaine can cause side effects, so use only a little at a time, and get your doctor's okay first.

A foot massage. Massaging the feet helps improve circulation, stimulate muscles, reduce tension, and ease pain. You can get those effects by rolling your feet over a massage ball or foot roller. Or try massaging your feet with your hands and a little skin lotion or topical medication. If you have any circulation problems, talk to your doctor first to make sure this is safe.

Seek shockwave therapy. This therapy (about $100 to $250 per session) uses sound and pressure waves to heal injuries in the foot and ankle. "It's not covered by insurance," Dr. Tenforde says, "but treatment can help heal injuries and provide long-term pain relief from conditions such as plantar fasciitis."

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Common foot conditions

Summer activities often trigger or aggravate the following conditions.

Plantar fasciitis. This condition, marked by sharp arch or heel pain, starts with tiny tears in the plantar fascia, a thick band of tissue that lies at the bottom of the foot and supports the arch.

Achilles tendinitis. The Achilles tendon attaches to the heel. It can become irritated and cause pain and swelling in the heel behind your ankle.

Sesamoiditis. The sesamoid bones are embedded in a tendon near the big toe. The bones and tendon can become inflamed and cause pain and swelling in the ball of the foot.

Bunion irritation. A bunion is a deformity marked by a bump at the base of a misaligned big toe. The joint can become inflamed and painful.

Arch irritation. People with fallen arches typically have weak tendons in the arch of the foot. Wearing shoes without arch support can cause pain in the arch area or heel.

Where can you go for blood work?

Expanding options make getting blood work more convenient. But do your homework before you go for testing.

You can have blood drawn at hospitals, labs, drugstore clinics, or even your home.

Blood tests are important tools doctors use to evaluate your health, but many doctors don't take blood samples in their offices. Now, the options for places to have your blood drawn are increasing. "It's being driven by demand. There aren't enough freestanding labs to meet consumer needs. We're seeing more providers and more insurance companies willing to work with them," says Ritu Ward, vice president of Laboratory Services at Beth Israel Lahey Health.

What are the options?

When your doctor asks you to get a blood test, it's up to you to decide where to have your blood drawn. You may make the decision based on your doctor's referral, costs, convenience, transportation, or whether you need an appointment (many places take walk-ins). In any case, you'll need a doctor's order (on paper or sent by your doctor's office) to have the test performed (and to ensure insurance coverage) at any of the following places.

Hospitals. Hospitals often have outpatient labs that offer a full range of testing. Note: Many hospitals are part of hospital networks, and another hospital in the network may be closer to your home or office than the hospital you normally use.

Freestanding labs. These labs are collection sites for independent commercial laboratories. They may be part of a large national chain, such as Quest Diagnostics or LabCorp, or small, local independent labs.

Drugstore clinics. Clinics at some drugstores, such as Walgreens, can draw your blood with a doctor's order.

Urgent care centers. Urgent care centers aren't just for sprained ankles or the flu. Some allow you to walk in and have blood drawn.

Your home or office. Mobile blood collection services come to you, draw a blood sample, and then take it to a lab for processing. Appointments are required. These providers might be independent operators or representatives from a large lab.

Considerations

Consider several factors when you're deciding where to have blood drawn. Here are some questions to ask.

Who'll draw the blood? Will the person collecting the sample be a trained, certified phlebotomist (skilled and experienced in drawing blood)? Not every state requires that degree of expertise, which means anyone (even someone with minimum training) can draw blood.

Will your doctor get the results? Make sure the doctor ordering the tests can receive the results directly.

Can you get in and out quickly? While it's possible to walk into many labs, you may have to wait longer if you don't have an appointment.

Does the phlebotomist have the equipment and know-how to find small veins? If you've been told you have veins that are hard to find, the phlebotomist may need specially sized needles or a vein finder device.

How much will this cost? Medicare covers many blood tests, but some are not covered (such as certain screening tests if you don't have any disease symptoms). A little shopping around will pay off, since labs charge different rates. And some mobile phlebotomy services tack on additional fees.

Being proactive

You can take a few steps to ensure that your blood draw is safe and accurate.

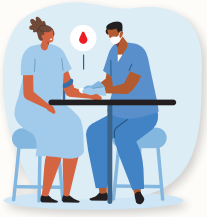
Follow instructions. Some tests, such as those measuring blood sugar, may require you to fast for a certain number of hours beforehand. Breaking the rule will affect test results or require you to postpone testing.

Stay hydrated. "That helps plump up your veins, making it easier for the phlebotomist to find them, which can help you avoid pain," Ward says. You need four to six cups of fluids per day, and some of that can come from watery foods like fruit and soup.

Stay alert. Watch out for sketchy-looking laboratories or lab practices. Ward advises that you look for a clean environment, with clearly identified biohazard disposal for needles. "Make sure the person collecting your blood is wearing gloves, uses a new tourniquet to clamp your arm before the blood is drawn, and labels the blood tubes with your name," she says.

Speak up. If you see that the staff doesn't seem to be following proper procedures, say something immediately. For example, ask technicians to wear gloves if they're not wearing them. Ask to see that your name is on the tubes of blood. "Seventy percent of errors happen during the collection stage," Ward says. "Make sure your specimen is collected under the best conditions possible."

Direct-access labs



Some labs allow you to get any blood test you like without an order from your doctor (the labs have their own physicians who'll write the orders). The catches: you have to pay for testing up front, most insurance companies won't reimburse you, and you'll get lab results without any interpretation.

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Get more out of your daily walk

Incorporate balance exercises, weight training, and vigorous activity into your routine.

You already go for a walk every day, which is great for overall health. Regular, brisk walking helps lower LDL (bad) cholesterol, control blood pressure, strengthen muscles, burn calories, and lift mood. Walking can also help ward off high blood pressure, heart disease, stroke, and diabetes.

And you can get even more health benefits by adding a few simple upgrades to your daily walk.

Improve your balance

Your sense of balance is based in the brain. "The brain integrates information from your inner ear organs, vision, and nerve endings and feelings in the feet, muscles, and joints, all the way up the spine," says Dr. Steven Rauch, medical director of the Balance and Vestibular Center at Harvard-affiliated Massachusetts Eye and Ear.

To maintain good balance, you need to put it to work regularly. Taking a daily brisk walk is good practice. If walking is easy for you, Dr. Rauch suggests making it a little harder, to get even more practice and potentially get better at balancing. For example, during a walk you could periodically take about 10 steps walking heel-to-toe. "The narrower your base of support when standing, the trickier it is to maintain your balance," Dr. Rauch says.

Other ideas: Turn sideways and take 10 side steps. Or keep walking forward, but turn your head slowly left and then right, a few times in a row. Why? "If you're walking in a certain direction but turn and look in a different direction, or aim your ears in a different direction, you're not giving the usual visual or auditory feedback to the brain, and it challenges your balance," Dr. Rauch says.

Incorporating bursts of running into your daily walk increases heart health perks.

Promote healthy bones and muscles

The more gentle stress we place on our bones, the stronger they'll become. The reason: exerting force on the bones stimulates them to add cells, which speeds up the process of building bone mass. Weight-bearing exercise is a standard way to strengthen your bones, and walking is a weight-bearing activity. Weight lifting is also a good way to strengthen bones. You can combine the two activities for extra oomph by wearing a weighted vest on your walk.

Get one that allows you to adjust the amount of weight you'll carry, such as a vest that has removable weights. You can find them for about $40 or more online or at sporting goods stores. How much weight should you carry in the vest? "Start with 5 pounds. After two weeks, increase the weight to 7.5 pounds. Two weeks, later, move up to 10 pounds. But don't wear the vest if it makes it hard to walk or if you experience any pain or soreness after wearing it," suggests Vijay Daryanani, a physical therapist at Harvard-affiliated Spaulding Rehabilitation Hospital.

Make your heart work harder

Walking at a brisk pace is a moderate-intensity activity that makes your heart and lungs work harder. The

exertion activates changes in your muscles, metabolism, blood vessels, and brain that contribute to improved heart health.

Your heart and lungs work even harder (and get even more benefit) with vigorous activity—the kind that makes it difficult to talk while working out, such as playing tennis or jogging. But check with your doctor before starting a program of vigorous activity.

One way to make your heart work harder on a walk is by adding arm movements. About 10 minutes into a 30-minute walk, begin raising your arms up and down repeatedly in any way that feels comfortable—such as straight out in front of you (like a sleepwalker in old movies), above your head (like a referee signaling a touchdown), or out to the sides (like you're flying). Try to maintain the arm activity as long as possible, up to 10 minutes. Then continue your walk for another 10 minutes.

Another way to make your heart work harder on your walk is by adding high-intensity interval training (HIIT). HIIT involves brief bouts of strenuous exercise. It's associated with equal or greater improvements in blood pressure and blood sugar compared with moderate-intensity exercise. But, again, check with your doctor.

During a walk, that would mean periodically breaking into a run for about 30 to 60 seconds. The easier this becomes, the longer the high-intensity intervals can last. Eventually, you may be able to walk for five minutes, then run for five minutes, alternating the activities for about 30 minutes.

Low vision aids ... *from p. 1*

Helping you navigate. There are apps to help you reach a destination, not only by saying step-by-step directions out loud (like Google Maps does), but also by describing the terrain around you, helping you find bus stops (the way Massachusetts Eye and Ear's All Aboard app does), alerting you to a bus arriving at a bus stop (the way BlindSquare does), or giving you directions inside a building (the way NavCog does).

Note: Apps for impaired vision may or may not be free, so make sure you investigate before installing them. Some services are available by subscription only. An example is Aira's connection to a live person who tells you what you're seeing: you need to buy a certain amount of monthly minutes to use it (starting at $26 per month).

Wearable tech

Some tools that help you cope with vision impairment are wearable—mounted in a headset, in spectacles, or in a device that fits onto your eyeglasses. Some contain software that makes it possible to see far away or up close, and may be helpful for people with macular degeneration, glaucoma, and other eye conditions. For example:

Spectacle-mounted telescopes. These magnify objects in the distance, and you can use them for driving (a "bioptic" telescope) or looking at a computer screen, a TV, or people's faces. Some have autofocus features.

Image courtesy of eSight

A video display system captures what it sees and projects images onto screens in a headset.

Video display systems. This type of low-vision device (such as eSight) is a futuristic-looking headset. It has a high-definition video camera that captures what it sees and projects the images onto screens inside the headset. The images can be enhanced to improve contrast, magnify, or expand your field of vision. Some gadgets also enable you to stream TV shows or view computer screens. (There are also handheld versions of these tools.)

Costs for these high-tech devices are in the thousands of dollars, similar to getting a pair of hearing aids. The U.S. Department of Veterans Affairs covers some devices for some veterans, but Medicare does not. You need to check to see if your private insurance covers a particular device.

Peripheral prism glasses

People who've suffered a stroke or traumatic brain injury sometimes lose half of their field of vision (a condition called hemianopia). The Peli Lens, developed by Bowers and Massachusetts Eye and Ear Senior Scientist Eli Peli, can help.

"The Peli Lens uses high-powered prisms to shift light from one side of your eye to the other, giving you back 30° of lost vision," Bowers says. "Now we're setting up a clinical trial to evaluate a different type of prism that's even higher-powered than the Peli lens, and has the potential to provide up to 45° of lost vision."

Other tools

Lots of other tools can make life easier for people with impaired vision. There are household gadgets like "talking" thermometers, scales, and calculators that audibly read out results. Large-print books, filters that reduce screen glare, and even good old-fashioned magnifying glasses are also helpful.

But the more technology advances, the more it will show up in low-vision devices. "Computing power continues to increase every year," Bowers says. "Scientists are constantly trying to find ways to improve assistive devices."

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Appreciating golf's cardiovascular perks

Golf is jokingly described as a good walk spoiled. But that walk is loaded with cardiovascular health benefits—maybe even more than you'd get from an hour of brisk walking or Nordic walking, suggests a small, randomized study published online Feb. 6, 2023, by *BMJ Open Sport & Exercise Medicine*. Researchers asked 25 healthy, experienced golfers (men and women ages 65 or older) to complete three different types of exercise within a five-day period (just one activity per day). The exercises included one 18-hole round of golf on foot (pulling golf clubs), one hour of brisk walking, and one hour of Nordic walking (which involves the use of poles). On exercise days, participants ate identical breakfasts and snacks; had their blood pressure, blood sugar, and cholesterol measured before and after exercise; and wore activity trackers. All three activities lowered blood pressure and levels of blood sugar and cholesterol. But golf seemed to have slightly more effect on blood sugar and cholesterol, at least in the short term. Scientists speculate it's because of the game's long duration (three to four hours) and the extra energy required to drag heavy clubs around a golf course. In fact, golfing burned more than twice as many calories as the walking activities. Because the study was small, a larger, longer-term study would be needed to confirm the results.

Can a healthy lifestyle ward off memory decline?

An increasing amount of evidence suggests that a healthy lifestyle is linked to better thinking skills later in life. But few studies have looked at healthy lifestyle effects on memory in particular, and none have considered the effects on memory in people with a genetic risk for Alzheimer's disease. Now a study from China offers insight. The study, published online Jan. 25, 2023, by *BMJ*, involved more than 29,000 people without dementia (average age 72). Participants initially underwent cognitive testing as well as genetic testing for genes known to raise risk for Alzheimer's, and reported how well they stuck to six healthy lifestyle habits (eating a healthy diet, exercising, not smoking, not drinking alcohol, being socially active, and engaging in brain-challenging activities). Participants were followed for 10 years, periodically reporting their lifestyle habits and undergoing cognitive testing. At the end of the study, people who stuck to at least four healthy habits showed significantly slower memory decline than people who didn't practice any healthy habits. This was true even among people with Alzheimer's-related genes. The habits associated with the biggest effects were diet, cognitive activity, exercise, and social contact. The study was observational and doesn't prove conclusively that a healthy lifestyle protected memory. But a healthy lifestyle has many health benefits, and you'll only win by improving yours.

Gardening may bring a harvest of health benefits

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Want to increase your fiber intake, reduce stress, and get a little more physical activity? A randomized study published in the January 2023 issue of *The Lancet Planetary Health* found all of those benefits when participants grew their own produce. The trial involved about 300 people (average age 41) who wore activity monitors and took occasional surveys about their diet and health. None of them had kept a garden for at least two years. Half of the participants were given an introductory gardening course, seeds, and community garden plots to work in for one year. The other participants were told not to do any gardening for a year. Compared with non-gardeners, gardeners ate about two more grams of fiber each day (a 7% increase in their fiber intake), reported greater reductions in stress and anxiety, and did about six more minutes of moderate-to-vigorous exercise per day (about 40 minutes per week). All of those changes are linked to better health, such as lower risks of cancer and other chronic diseases.

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