

Promoting Independence in Spite of Vision Difficulties

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Introduction

Most people report that vision is the most important sensory ability they possess, and 79% of Americans over age 55 say vision is the sense they are most concerned about losing. Such reports are not surprising since the ability to see plays an integral role in many daily activities, such as household chores, hygiene, driving, paid work, leisure, volunteer work, social engagement, and computer/technology navigation.

This paper explores several topics relevant to vision and aging, such as: normal age-related changes, preservation of vision, most common age-related sources of low vision/blindness, and various strategies and modifications that can help older adults with vision impairments bounce back from vision loss.

Normal Age-related Vision Changes

It is common for people to notice changes in their vision with age. Some signs of normal, age-related vision changes are:

- Difficulty seeing objects up close.
- Having trouble distinguishing colors, such as blue from black.
- Needing more time to adjust to changing levels of light.

Such problems are often easily corrected.

Glasses, contact lenses, and improved lighting may help individuals maintain their lifestyle and independence.



The risk for some eye diseases and conditions increases as we grow older, and some eye changes are serious.

Steps can be taken to preserve the



health of your eyes and monitor for signs of abnormal changes in vision.

Tips for Preserving Vision

A number of steps can be taken to maintain good vision and help keep your eyes healthy as you age:

- Protect eyes from sunlight by providing sunglasses that block ultraviolet (UV) radiation and a hat with a wide brim when outside. Polarized sunglasses are a good option to consider.



- Don't use tobacco products, as they deprive the eyes of healthy oxygen and blood flow, which can damage the eyes.
- Eat foods that contain nutrients for eye health, such as anti-oxidants, Vitamin C, and Zinc. Some foods that are great for eye and overall health are: fish, kale, colorful fruits and vegetables, lean protein (including eggs), legumes, and nuts.
- Engage in regular physical activity and maintain a healthy weight.
- Be sure to treat high blood pressure or diabetes if diagnosed. High blood pressure and diabetes can lead to vision loss, so minimizing the risk for such conditions can help protect vision.
- If you are spending much time at a computer or looking at a tablet, take regular breaks to avoid eye strain. Tinted glasses are designed to minimize the impact of blue lights from computers, phone screens, or other technology

Have your eyes checked regularly by an eye care professional — either an ophthalmologist or optometrist. Finding and treating problems early can help prevent vision loss. Take a list of questions and concerns to your doctor as well as a list of your medications; some can affect your vision. People over the age of 50 should have their eyes dilated during the annual eye exam. Many eye conditions can be detected when the pupils are enlarged.



Age-related Sources of Low Vision or Blindness

The term vision loss refers to individuals who report that they have “a little trouble” or “a lot of trouble” seeing, even when wearing glasses or contact lenses, as well as those who report they are blind or unable to see at all. According to the 2022 National Health Interview Survey, 50.18 million non-institutionalized Americans report experiencing some vision loss, with 13.16 million of this group being aged 65 or older. Many of these individuals are categorized as having “low vision,” which means eyesight cannot be fixed with glasses, contact lenses, medication, or surgery.

The four most common age-related conditions that lead to low vision or blindness are: age-related macular degeneration (AMD), diabetic retinopathy, cataracts, and glaucoma.

Some common indicators of vision loss are: difficulty reading street signs or printed/digital material, lights appearing dimmer than normal, trouble seeing faces of loved ones, and difficulty distinguishing between colors. Regular eye exams can play an important role in preserving vision. If an eye care professional finds a problem early, there are often things that can be done to minimize vision loss.

- Age-related macular degeneration (AMD) can harm the sharp, central vision needed to see objects clearly and to do common things like driving and reading. An eye care professional will ask about family

history and look for signs of AMD during a dilated eye exam. Treatments are available, and special dietary supplements can help lower the chance of it getting worse.

- Diabetic retinopathy may occur if someone has diabetes. It develops slowly, often with no early warning signs. For those with diabetes, be sure to have a dilated eye exam at least once a year. Keeping blood sugar, blood pressure, and cholesterol under control can prevent diabetic retinopathy or slow its progress in early stages. Laser surgery in later stages can sometimes prevent it from getting worse.
- Cataracts are cloudy areas in the eye's lens that cause blurred or hazy vision. Some cataracts stay small and don't change eyesight much. Others become large and reduce vision. Cataract surgery can restore good vision and is a safe and common treatment. If you have a cataract, your eye care professional will watch for changes over time to see if you would benefit from surgery.



- Glaucoma is usually caused by too much fluid pressure inside the eye. If not treated, it can lead to vision loss and blindness. People with glaucoma often have no early symptoms or pain. Glaucoma can be treated with prescription drugs, lasers, or eye surgery.

*If an eye emergency occurs, you need to seek medical care immediately to minimize potential harm to the eyes. Signs of a medical eye emergency include:

- Experiencing eye pain
- Seeing floaters (tiny specks or “cobwebs” that seem to float across your vision) and/or flashes of light
- Experiencing double vision
- Redness or swelling of your eye or eyelid
- You suddenly cannot see or everything looks blurry



Navigation & Safety around the Home

Many older adults with low vision live independently. Vision impairments require thoughtful arrangements and modifications around your home to ensure safety, reduce risks, and to promote independence. You may require assistance setting up these modifications or you may need weekly ongoing help. But with planning and setup, you can successfully maintain your independence long term.

One of the most important steps is to keep pathways clear of clutter to prevent trips and falls. Using secure or non-slip rugs can help you avoid tripping hazards, and arranging furniture to create wide, unobstructed paths facilitates easy movement. For additional safety, appliances such as stoves and irons equipped with automatic shut-off devices are essential. These devices turn off if they are left on for a set period, significantly reducing the risk of fire or injury. Additionally, motion-sensor or timed night lights can ensure safe navigation during nighttime trips to the bathroom or kitchen, thereby reducing the risk of falls.

Ensuring that beds and chairs are sturdy and at an appropriate height is crucial for ease of use. Furniture risers can be used to adjust the height to a comfortable level if necessary. Installing grab bars and handles near beds and chairs provides additional support and stability, while bed rails can be particularly helpful in assisting with getting in and out of bed.

To aid in navigation, tactile markers can be added on walls, railings, and floors. For instance, textured tape on stairs or around door frames can indicate transitions and important areas.

Using bright, contrasting tape on the edges of stairs, door frames, and countertops can improve visibility and safety. For example, placing a strip of bright yellow tape along the edge of each step makes the steps more visible. Labeling key areas like kitchen cabinets, bathroom drawers, and light switches with large print or braille stickers helps in identifying important items and locations quickly and easily.

Clear, large print signs in important areas like the bathroom, kitchen, and bedroom, combined with color coding for each room (e.g., red for the bedroom, blue for the bathroom, yellow for the kitchen,) can further aid recognition. These signs should be placed at eye level to ensure they are not missed. Directional signs, such as arrows or footprints on the floor, can guide

movement through the house, particularly in critical pathways like from the bedroom to the bathroom. Using contrasting colors for furniture and rugs can also help distinguish different areas.

Bathroom



Shirts

Bowls

Arranging items logically and within easy reach can reduce confusion and increase the ability to perform daily tasks independently. For instance, everyday dishes can be kept in a lower cabinet that is easy to access, while keys, glasses, and wallets can have designated spots on a table by the door to avoid misplacement. Similarly grouped items, such as a newspaper and glasses, can be placed together.

Consistently placing items in the same spot, like always putting the remote on the side table, can help establish a predictable environment. Keeping countertops and surfaces clear except for essential items can also reduce visual clutter.

Have a friend or family member help you develop and regularly rehearse an emergency plan. A large print and braille emergency contact list should be maintained in an easily accessible location, including important numbers for quick reference during emergencies. Having a personal emergency response system that can be worn and easily activated would allow you to call for help

quickly if you encounter any problems and offers an additional layer of safety and peace of mind.

Activities of Daily Living

Managing toileting needs is a concern for those with vision impairments. Maintaining a consistent bathroom layout can prevent confusion; for example, always keep essential items like toilet paper and handrails in the same place. Raised toilet seats with handles offer better support, making sitting and standing easier. Using a brightly colored toilet seat enhances visibility, while marking the edges of the bathroom floor with contrasting tape can help define boundaries and improve spatial orientation.

Safety in the bathroom, especially during bathing, is paramount. Ensure the bathtub or shower has non-slip mats or stickers to prevent slipping. A shower chair and handheld showerhead can make bathing easier and safer, allowing for a more comfortable experience. Installing grab bars both inside and outside the shower provides additional support and stability, reducing the risk of falls.

An organized closet can significantly aid in dressing and undressing. Arrange clothing by type and color, and label drawers and shelves with large, high-contrast labels. Adaptive clothing featuring easy-to-use fasteners like Velcro, magnetic buttons, or elastic waistbands can be particularly helpful. Providing a sturdy chair or bench in the dressing area would allow you to sit while dressing, further reducing the risk of falls and making the process more manageable.

For grooming tasks, such as shaving, hair care, teeth brushing, and makeup application, adaptive tools can make a big difference. Electric razors, electric toothbrushes, and long-handled brushes can simplify these tasks.

Ensure the bathroom has bright lighting, preferably with daylight bulbs, to enhance visibility. Keeping grooming tools in the same place and using a tray or basket to organize items ensures they are within reach and easily located. Color-coding personal items like toothbrushes and razors can help distinguish them



easily. Tactile markings on shampoo, conditioner, and body wash bottles can assist in differentiating these products by touch.

There are many adhesive “bumps”, or tactile pads online to choose from, and they are usually low cost. The best products are ones with multiple tactile styles to choose from: here is a good choice on Amazon.com: **“318 Pcs Mixed Bump Dots for Visually Impaired, Adhesive Dots Braille Stickers for Low Vision.”**

Managing medications requires careful organization. A pill organizer with large, clear labels can be very helpful. For added assistance, consider using a talking medication dispenser.

Setting up medication reminders using alarms, smartphone apps, or voice-activated assistants like Alexa or Google Home can help ensure medications are taken on time. Store medications in a consistent, easy-to-reach location to ensure they are readily accessible when needed.



American Lifetime offers a highly-rated digital clock designed for older adults. It has a large display, and alarms can be customized to include text, which can be used to remind residents of medications and appointments.

A wide range of **weekly and monthly pill organizers with alarms** can be found online for a wide range of prices. Choose one within your price range and based on your needs. Be sure to choose one with different colored days.



Smart speakers, such as Amazon Echo or Google Home, can play a pivotal role in assisting people who want to be independent with daily tasks. These devices respond to voice commands, making them easy to use. Smart speakers can provide reminders for medications, appointments, and daily activities, helping you stay organized and independent.

Additionally, digital calendars with automatic alerts for medications and appointments, along with apps that send notifications or alarms on phones and tablets, can serve as great tools for keeping track of important tasks. Pill organizers with built-in alarms can also remind you to take your medications on time, ensuring you stay on top of your health needs.

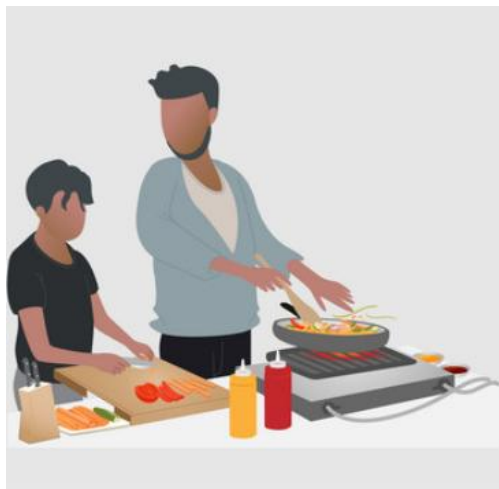
Amazon Echo (Alexa) is the most widely used device, with multiple options and starting around \$30 – this is likely the best option! Look out for common Amazon deals throughout the year, such as Prime Day and Black Friday.

Google Nest is another option, but tends to be more expensive, and many Amazon-specific services are not compatible.

Instrumental Activities of Daily Living

Making meal preparation easy and safe is essential when you have vision impairments. Using high-contrast plates and bowls, such as dark-colored plates for light-colored foods, makes the food more visible. Equipping the kitchen with tactile tools, like oven mitts and utensils with large, easy-to-grip handles, can simplify cooking tasks.

Talking kitchen gadgets, such as thermometers, scales, and timers, provide audible feedback, making it easier to manage cooking. Stove guards can also help prevent accidental contact with the stove while cooking, adding an extra layer of safety. Another option is to arrange for meal delivery. These services cater to dietary needs and ensure access to nutritious meals without extensive preparation.



Online, **talking kitchen tools** can be easily found at various price ranges. Other easily-found kitchen tools include **one-touch electric can openers**, **vibrating liquid level indicators** to prevent overfilling cups, and **food choppers** for easy cutting and to help you avoid the use of knives.

For **stove protection**, there are many options depending on the individual's need. Examples include automatic stove shut-off outlets, fireproof stove top covers, stove knob covers, and oven door locks.

Maintaining a clean and organized home helps prevent accidents and enhances safety. Keep frequently used items in designated places and use large labels or tactile markers for easy identification.

Investing in a robot vacuum cleaner can help maintain floors without the need for manual cleaning, or periodic cleaning services can ensure the home remains clean and safe. Smart thermostats can be controlled with a simple app interface or voice commands, and can be programmed to maintain specific temperatures throughout the day, eliminating the need for manual adjustments.

iRobot and Shark are the two most popular robot vacuums; however, they can be expensive, even on sale. While there are cheaper options, they often do not work as well and may be more trouble than they are worth. Be sure to check product reviews before purchasing.

Google Nest and **Ecobee** are two popular smart thermostats with many capabilities. However, a cheaper and simpler choice is the **Amazon Smart Thermostat**. It offers a simplified design, is easier to utilize, and is over \$100 cheaper than the other choices. If using Alexa, you can use voice commands to change the temperature.

Communication

Communication is vital when you have vision impairments. Phones with large buttons and high-contrast displays make dialing numbers and seeing screens easier. Setting up voice-activated assistants for making calls, sending messages, and setting reminders can simplify communication tasks. Easy-to-use video calling devices help you maintain contact with family and friends, reducing feelings of isolation. Installing screen reader software and screen magnifiers on computers and smartphones enhances accessibility.

Video call apps like Skype or Zoom can be set up with easy-to-access contacts, allowing you to make calls with just one or two taps. Phones designed for simplicity, with large buttons and clear displays, and setting up speed dial for important contacts, using both names and pictures can help with quick and stress-free communication.

There are guides to setting up contacts for both **Skype** and **Zoom**:

<https://www.agespace.org/tech/skype-beginners-guide>

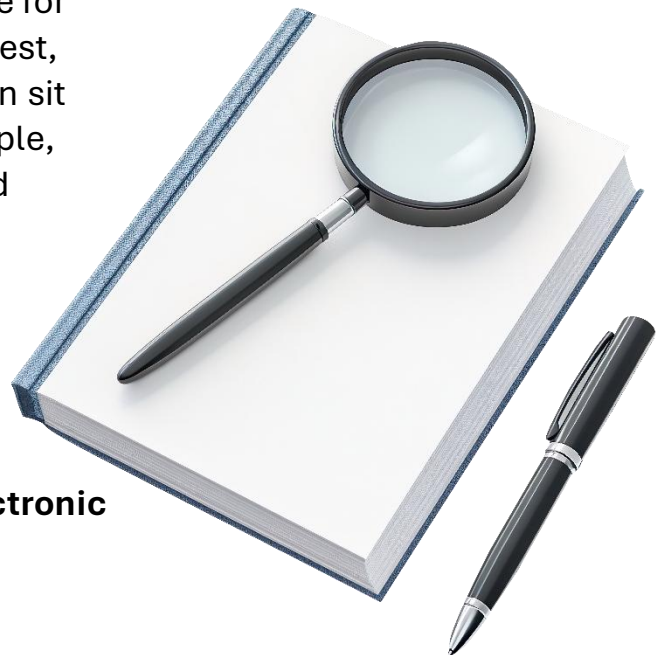
https://support.zoom.com/hc/en/article?id=zm_kb&sysparm_article=KB0065609

Reading can be challenging for people with vision difficulties, but several adaptations can help. For example, you can use audiobooks and e-readers with adjustable font sizes and backlighting. Handheld or stand magnifiers can assist with reading printed materials.

Voice-activated devices can read news, books, and instructions aloud. Large print books, magazines, and instructions, and the use of large font sizes on printed materials can make reading easier. Microsoft also offers a free app for smartphones and tablets called, Seeing AI. This app allows you to place your camera in front of text, and it reads it out to you! While the app is in ongoing development, current features include recognizing faces, checking currency for accuracy, and providing descriptions for whatever object it is viewing.

Various magnifiers can be found online for different purposes and tastes. Of interest, look for **large magnifier/lights** that can sit on your lap when you are reading. Simple, **flat magnifying glasses** can be placed directly on the page for easier reading. While more expensive, there are also digital magnifiers, which reproduce text onto a device, which can then be read: here is an option, on Amazon.com:

Eyoyo Digital Magnifier Portable Electronic



Universal remote controls with large, clearly labeled buttons can be pre-programmed for TVs and cable boxes to minimize confusion. Smart TVs equipped with voice-activated remotes allow users to change channels, adjust volume, and search for shows without having to use buttons. Favorite channels can be pre-programmed, and buttons can be labeled with symbols or colors for easy recognition. The TV's guide can be used to set reminders, ensuring that you do not miss a favorite show.

Many **large-button universal remotes** can be found online, some with only a few select buttons, and others with more. Choose one that is within your price range and fits your needs and capabilities so you can effectively use the remote control.

When learning new technology, have someone help familiarize you with technological features like screen readers, magnifiers, and voice commands so you'll be comfortable using them when alone.

Ensure your devices have accessibility features, such as tablets with large icons, high-contrast screens, and voice controls. Customizing devices to be simple and user-friendly by removing unnecessary apps and clutter can make technology more accessible. Voice-activated assistants can help with everyday tasks, and clear labeling with large, high-contrast text on frequently used devices and buttons can enhance usability.

Additional Resources

In many cases, people who are experiencing vision loss are not familiar with how to use available resources to adapt to their new reality. Fortunately, trained professionals are available to help you learn to use these resources and maintain full and productive lives. Some services and technology are free and others must be purchased.

Many states offer financial support through vocational rehabilitation services for people with low vision/blindness,



particularly if they are employed or enrolled as students. Many local training centers offer courses and support groups to help people adapt to vision loss. Below is a list of training resources offered in many states:

1. **Voice Over:** This is a training class that teaches people to use an iPhone with the built-in screen reader “Voice Over”. This class instructs people how to use their iPhone with taps, gestures, swipes, dictation, etc. This training will allow even a totally blind user to use an iPhone.
2. **JAWS software:** This training teaches people who cannot see their screen on a computer how to navigate using only a keyboard and not a mouse. This training consists of memorizing many hundreds of keyboard commands to use your computer the same way as a sighted person. The screen reader navigates with the keyboard and, reads all of your information aloud.
3. **Fusion software:** Fusion is a program that combines magnification of the screen on a computer with a screen reader, as well. This program works for people who are losing vision, but still have enough to see the screen with magnification. It is a great program for people who are transitioning from reading with magnification to needing to use a screen reader only.
4. **Zoom Text software:** This is a magnification program that allows you to magnify from a small amount to an extremely large amount. You can change not only the size of the text and pictures on the screen, but you can also change colors, boldness of text, etc.
5. **Adjustment to Vision Loss and Blindness Groups:** Some groups are general chat groups, others address hobbies, careers, cooking, independent living, and other activities.

The National Library Service for the Blind and Print Disabled (NLS) is part of the Library of Congress and provides free audio and braille books and magazines to eligible people in the U.S. They will also provide an audio player for free. And books can be downloaded at no cost through the BARD website.

National Federation of the Blind (NFB) exists primarily to advocate for the rights of the blind and visually impaired. They also promote and sponsor social gatherings and meetings monthly. The organization offers advocacy training and peer support. To find out more, visit NFB.org or reach out to a chapter president.

American Council for the Blind (ACB)

This organization offers training and support. Their website, acb.org, provides a diverse list of Blind/Low Vision Resources, including those for older adults with vision impairments.

Conclusion

Promoting independence for older adults with vision difficulties involves an understanding of age-related vision changes, common sources of vision loss, and implementing effective strategies and modifications. Normal changes, such as difficulty seeing objects up close and adjusting to light levels, can often be managed with corrective lenses and improved lighting.

More serious conditions like macular degeneration, diabetic retinopathy, cataracts, and glaucoma require early detection and appropriate treatments to minimize their impact. Maintaining good vision through lifestyle choices and creating a safe home environment with clear pathways, secure rugs, and motion-sensor lighting can enhance safety and aid independence.

Adaptive tools and technologies, such as smart speakers, screen readers, and voice-activated assistants, support daily tasks and communication. Training programs, support groups, accessible libraries, and advocacy organizations play a critical role in helping people with vision impairments adapt and thrive. By utilizing these strategies and resources, older adults with vision difficulties can lead independent and fulfilling lives.



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Dr. Shelton earned her degree in Experimental Psychology with a specialization in Cognitive-Developmental Science from Louisiana State University. She is a Professor of Psychology at UTC, the Director of the Psychological Science MS program, and the Director of the Cognitive Aging, Learning, and Memory lab. She is particularly interested in teaching behavioral strategies to maximize the cognitive potential of older adults.

As a member of the low vision/blind community since childhood, Dr. Shelton has been involved in research and community outreach projects that encourage resilience in people with disabilities. Her education and experience make her uniquely qualified for helping older adults with visual challenges maximize their ability to live independently.

Thomas Vorwerk earned his M.S. in Psychological Science at the University of Tennessee at Chattanooga, specializing in cognitive science and gerontology. Currently completing an M.S. in Mental Health Counseling, Tom is on the path to becoming an LPC MHSP, focusing on older adults and their caregivers with an emphasis on promoting cognitive resiliency and functional independence in older adults.

With hands-on experience in aging care settings, Tom has developed a strong interest in cognitive health and positive aging. He previously worked as an activity director in a facility for older adults which deepened his commitment to advocating for and supporting older adults.