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HEALTH JOURNAL
By MELINDA BECK

High Technology For Low Vision

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Sharon Fowler had to stop teaching after 31 years when hemorrhages behind her retinas severely reduced her vision. "When you can't tell who's who and what's flying across the room, it's time to quit," she says. She kept playing drums in her church band, but couldn't see the sheet music. "They had to wave at me to tell me when to stop," says the 58-year-old Parkersville, W. Va., resident.

WSJ's Melinda Beck reports on LowBrowse, a new and free software by Lighthouse International that helps people with poor vision browse the Internet.

Then, vision-rehabilitation experts at the Duke Eye Center in Durham, N.C., fitted Ms. Fowler with glasses that had an adjustable telescopic lens, and her world opened up again. "I can see individual leaves and blades of grass," she marvels. "And when I realized I could read music again, I just started crying."

Even if you can read this, chances are you know somebody who can't. More than 16 million Americans report some form of visual impairment even when wearing glasses or contacts. That number is expected to double by 2030 as the aging population brings rising rates of macular degeneration, glaucoma, diabetic retinopathy and other eye diseases.

But "low vision" (technically, worse than 20/60 in the better eye) doesn't have to mean darkness and dependence. An ever-growing array of devices can help people maximize their remaining vision and in many cases, compensate for what they've lost. Some of the new offerings: free software that can tailor the text on any Web site to your personal visual needs, and a cellphone that can snap photos of text -- like signs and restaurant menus -- and read it back to you.

"These products solve people's problems," says Jerry Mansell, vision-rehabilitation coordinator at the Duke Eye Center. But he cautions that they can be a waste of money if they aren't suited to individual needs.

Ideally, people who are visually impaired should have a comprehensive vision rehab assessment. This includes a visit with an eye doctor, a technology specialist and an occupational therapist who can evaluate a person's limitations and goals. "Artists and musicians need different help than somebody who just wants to be able to watch TV," says Diane B. Whitaker, director of vision rehabilitation at Duke Eye Center, which offers such services. "Many people don't know these resources exist," she adds, in part because ophthalmologists have traditionally seen vision rehab as a last resort.

Lighthouse International, a nonprofit organization in New York, also offers vision rehab. “We’ll even go to your office and talk to your boss. We’ll give you the technology you need to keep your job,” says Leslie Gottlieb, a Lighthouse spokeswoman. The group’s Web site, Lighthouse.org, has a list of low-vision resources around the world. The organization is sponsoring an exposition of low-vision products on Sept. 19 in New York.

Medicare and private insurance will pay for a doctor’s evaluation and occupational therapy. Devices generally aren’t covered, but low-vision clinics may be able to get discounts for you or suggest lower-priced alternatives.

Here’s a look at some of the newest technologies:

Customizing a computer. Starting today, you can download a free software program from Lighthouse called LowBrowse. As you read any Web page, the line of text beneath your cursor appears in a banner across the top of the screen. The software lets you select the type size, style, color and spacing of the text that appears in the banner. “Your preferences travel with you as you surf the Web, so you have to set them only once,” says Aries Arditì a senior fellow at the Lighthouse who developed the program along with associate Jianwei Lu and a grant from the National Eye Institute.

LowBrowse, which also can read the text aloud and magnify images, is available at www.LowBrowse.org or at the add-ons site for Mozilla Firefox. It’s compatible with Windows, MacOS and Linux, but requires the Firefox browser.

Other programs such as ZoomText (\$600) from Ai Squared can also customize applications such as Outlook, Word, Office and Excel. The Mac OS X has many of these functions built in.

Stand-alone reading machines, like the SARA from Freedom Scientific (\$2,700), can read any printed material aloud even without a computer.

Reading on the go. The KnfbReader Mobile is a cellphone with a camera. Take a photo of any text, and the phone reads it back to you aloud or via headphone. The device, which costs \$2,195, can store thousands of pages, and you can adjust the speed and pitch of the computerized reading voice. “Twenty years ago, this technology was the size of a washing machine and cost \$50,000,” says Mr. Mansell.

You are here. Another handheld helper is the Trekker Breeze by HumanWare, a global-positioning system that announces the names of streets and intersections as you are walking or riding. With the press of a button, it tells you your location. The cost is \$895. It’s available now in English; versions for Europe and Asia are expected later this year.

i-vu

The Clarity i-vu magnifies print up to 20 times and can alter the contrast to make menus, books and currency easier to read.

Mini magnifiers. Desktop devices that magnify reading material, photographs -- even your hands as you sew or

write checks -- have been around for years. New portable versions come as small as paperback books. They cost from \$220 to \$1,300, but promise much more clarity, contrast and flexibility than an ordinary magnifying glass.

The \$345 MAX by Enhanced Vision, uses your TV set as a viewing screen; you move a mouse with a built-in camera over the text you want to see. Other lightweight, portable cameras can be focused on objects like blackboards, faces or paintings and either display them larger on a TV or a laptop screen.

Jordy

Jordy is worn like a pair of glasses

Real reality glasses. Like a virtual-reality system, the JORDY glasses by Enhanced Vision can magnify objects as much as 30 times and display them on a tiny embedded TV screen. The focus can be adjusted so users can see faces, watch TV or follow ballgames in a stadium. It's \$2,995, and converts to a desktop viewer.

Specialty eyeglass makers can also insert telescopic lenses into regular glasses, and adjust the focus with different caps for different distances, as Ms. Fowler had done at Duke.

Prosthetic contacts. Custom contact lenses -- fit to thousands of reference points on the eye -- can sometimes correct problems that off-the-shelf contacts can't, including corneas damaged by trauma. A hunting accident left Bill Robinson, a former chief financial officer, with no vision in one eye and nearly blind in the other. But Dan Myer, a custom contact-lens designer in Atlanta, created a prosthetic lens that has given Mr. Robinson good functional vision, enabling him to drive and work as a CPA.

"It's rare that we can't help a patient," says Mr. Myer. And when patients have been told elsewhere that nothing can be done for them, "that only makes it more fun," he says.

Staying connected. Cellphones can help the visually impaired maintain mobility and independence, but can be difficult to use. The Jitterbug, by Samsung, has extra large buttons and display. And its cousin, the Jitterbug OneTouch, has only three buttons -- one for 911, one for any number you program in, and one for a dedicated phone operator who will place other calls for you. Both are \$147. Monthly contracts run from \$10 to \$40.

Heard any good books? BookCourier, \$395 from Springer Design Inc., is a simple pocket-size player that can hold up to 10 audio books at a time; they can be downloaded from services like Audible.com and BookShare.org. "It's the best thing ever invented," raves Eleanor Roth, a Lighthouse volunteer in New York who has lost much of her vision to retinitis pigmentosa.

PlayAway books have a built-in audio player. You buy the "book" and just hit play. More than 1,400 titles are available, generally \$30 to \$40 each.

If you're registered as legally blind (20/200 or worse in the better eye), you can sign up to receive a free tape player and unlimited free books on tape from the Library of Congress. You mail them back postage-free in a pre-addressed plastic mailer.

Gadgets galore. A legion of simple, low-tech products -- like large-print playing cards, kitchen timers, measuring cups and computer keyboards -- can make life easier for the visually impaired. So can the EZ Fill, a battery-powered alarm that hooks onto a mug and beeps when it's almost full. And the Hi Mark 3D writing pen is a tube of goo for labeling appliances and other objects around the home so they can be identified by feel.