

Talking Technology

Your user's guide to assistive communication.

BY CATHERINE G. WOLF

I love to write: poems, essays, how-to articles, and letters to friends and family. But for 10 years, I have had amyotrophic lateral sclerosis (ALS), a degenerative disease that severely affects my ability to speak, move, and breathe. Thankfully, new augmentative and alternative communication (AAC) technologies have helped me keep writing for the past eight years. These technologies can also be a lifesaver if you have a spinal-cord injury, stroke complications, multiple sclerosis, or muscular dystrophy.

AAC includes three components: a speech output, a substitute computer mouse, and a keyboard replacement. You may not need all the parts right now. If your voice is deteriorating but your fingers are fine, you might only need a small device that produces speech when you type. If your fingers don't work but your speech is unaffected, you could replace the keyboard with a speech-recognition program. ALS progresses differently in different people. Sooner or later, though, you're going to need the flexibility that a computer offers, so if you don't know how to use one, learn now.

SPEECH RECOGNITION

In the end of 1998, I started using speech-recognition software, which converts dictated speech into text. You speak and text appears in whatever program you're using. Most speech-recognition products don't require training, but you get better results if you train it to your way of speaking. You can create voice commands, for example, that perform several computer tasks. All programs have formatting commands, such as "new paragraph," and some programs enable you to create custom sequences of commands that are executed by speaking a word or phrase. I used IBM ViaVoice, but many people



use Dragon Naturally Speaking. Speech recognition is by no means perfect, though—I corrected persistent errors by typing with my one good finger.

MOUSE REPLACEMENTS

By the fall of 1999 my speech had deteriorated to the point that speech recognition was no longer an option. I looked for devices that could replace the keyboard, the mouse, and my speech. I gathered information from online sources such as Living with ALS (health.groups.yahoo.com/group/living-with-als/) and worked with speech therapists at my ALS center and a well-known rehabilitation hospital who recommended products for me to try. Many companies offer their equipment free or at a nominal fee for trial use.

Mouse replacement devices allow you to use your mouth, head, or other body part to move the cursor and "click" to select options. I tried the mouth-operated Jouse and the head-operated HeadMaster Plus—both by Prentke Romich—as well as the head-operated HeadMouse by Origin Instruments. The only one that worked for me was the HeadMouse; but everyone is different, which is why you must test the device.

Ask yourself if the equipment will function in all your settings. I tested one device that seemed to jump around the screen of its own volition. It turns out that it didn't work with the fluorescent lighting in my office. (My helper and I learned this after numerous calls to the company, and this is another rea-

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son to test the product: It gives you a chance to evaluate tech support.)

Also, look for devices that are flexible. For instance, in addition to controlling the cursor, a mouse substitute has to perform the function of a left-click for almost all applications. The device for positioning the cursor may be different from the device that you use to click. One product I tried required me to breathe out for a left-click and breathe in for a right-click. Unfortunately, the force needed to perform a click was not adjustable, and my compromised respiratory system wasn't strong enough for the default setting.

The HeadMouse had a place where you could connect one switch for a left-click and one for a right-click. A switch is simply a device that can be turned on or off. I first started using the HeadMouse with a switch that required me to push against the side of the keyboard to click. That didn't last very long, so the speech therapist introduced me to a low-pressure switch from Don Johnston that I could operate with one finger. When my finger lost the strength to operate that switch, I tried it under my foot, but the “clomp, clomp” of people's footsteps resulted in inadvertent clicks. In the end, I settled on a flat, low-pressure Pal Pad switch made by Adaptivation that I could use under my foot without any inadvertent clicks. I also used the HeadMouse with a software program, Magic Cursor, that performed all the click functions. Because of its flexibility and the excellent support from Origin, the HeadMouse served me well for about three and a half years. Ideally, you should be able to use any switch with a mouse substitute, because the switch will change as your abilities change.

KEYBOARD REPLACEMENTS

I also needed a keyboard replacement to use with my HeadMouse. There are two classes of onscreen keyboards: “pointing” and “scanning.” With pointing keyboards, you use some device, such as a Head-

Mouse, to point at the keys. Almost all have demonstration versions that you can download for free. I tried WiVik 2.5, SofType, Gus, and a few others. There are also free on-screen keyboards such as Skeleton Key.

Make sure the keyboard works with the programs you use. One keyboard I tried didn't work with my corporate e-mail account. The same keyboard occupied the lower half of the screen and could not be resized, which was inconvenient.

Most keyboards start with a basic vocabulary and add new words that you use. Look for word prediction and abbreviation expansion. Here is an example of word prediction. If I type “int,” the words “into,” “interview,” and “interest” might be suggested to complete the text. And when I type “tx,” abbreviation expansion converts it to “Thank you for your help.” I chose WiVik 2.5 because it was easy to use, and I could easily customize the keyboard.

By October 2003, my neck muscles had grown so weak that I could no longer point to letters on the keyboard with the HeadMouse. I switched to an on-screen scanning keyboard, which works by highlighting successive rows of letters. When you get to the row containing the letter you want, you activate your switch. The letters in that row are then successively highlighted, and you activate your switch when the individual letter you want is highlighted. If you don't select a key, the same

process is carried out on the next row. The scanning keyboard allowed me to lie back on my headrest and let the keyboard do the pointing instead of pointing with my head.

WiVik 3 has both pointing and scanning on-screen keyboards as well as a mouse substitute. Plus, it can scan menus and has good text-editing features, which I'm using as I write this article. I used WiVik 3 with two switches: an ERI proximity switch to select a key by moving my head (it's expensive but worth it) and a Pal Pad under my foot to cancel.

SPEECH OUTPUT

For speech output, I only tried E-triloquist. It is free and written by a man whose father had ALS. Speech output typically works by converting your typed text to speech. Windows operating systems now come with text-to-speech, but you need a program like E-triloquist to access it. Most text-to-speech sounds mechanical, but E-triloquist allows you to record phrases and sentences in your own voice. Before my voice was gone, I recorded each family member's name, a few sentences, and a few jokes. I wish I had recorded more.

THE FUTURE

There are other exciting technologies in development—some even use brain waves to allow you to communicate. So keep writing. If you have the words, and we all do, someone can help you bring them to fruition. 

Catherine G. Wolf has been living with amyotrophic lateral sclerosis since 1997 and is a frequent contributor to Neurology Now.



For more information about neuromuscular diseases, see [RESOURCE CENTRAL on page 46.](#)