

## Giving The Gift Of Speech

East Carolina University



No one knows for sure what causes stuttering, which affects 3 million people in the United States. But a trio of researchers from East Carolina University developed a device that has helped thousands of people who stutter become more fluent, enabling them do things they previously considered off limits.

For most of her life, Carol White of Ocean City, Md., lived in relative silence. That's because she has been affected by stuttering since she was 2 years old. Though she had undergone speech therapy when she was younger, stuttering remained a barrier to doing things that most people take for granted.

"I didn't use the telephone unless I really had to, and I'd often avoid situations that involved talking to people," she says. But that all changed in 2003, after she saw an intriguing report about the SpeechEasy® fluency device on ABC's "Good Morning America" news show.

"I thought I'd give it a try, and I'm glad I did," White says. The device, which can be worn like a hearing aid, helps

reduce stuttering. In White's case, it almost has eliminated her stuttering entirely. "I'm doing things I wouldn't have dreamed of doing before," she says.

Case in point: the 61-year-old is now a real estate agent — a profession requiring a significant amount of communication and interaction with others. For thousands like White, the SpeechEasy® device has opened doors to new opportunities.

## **The Product of Extensive Research**

Having dealt with the challenges of being a person who stutters severely himself, Joe Kalinowski vowed he would try to find a way to help others affected by stuttering. After receiving a Ph.D. in speech pathology from the University of Connecticut, Kalinowski went on to Dalhousie University in Halifax, Nova Scotia, where he and Andrew Stuart, Ph.D., conducted extensive research on delayed auditory feedback, or DAF. DAF is based on the choral speech phenomenon, in which people who stutter enhance their fluency when they speak in unison with others.

Using DAF, those who stutter are able to hear their own voices with a slight time delay, and by speaking in unison with their own voices, they achieve greater fluency. Though speech experts had known about DAF for decades, Kalinowski and Stuart made great advances in using it to reduce stuttering. One of their key discoveries was that shortening rather than expanding the delays in auditory feedback enhances fluency in those who stutter. So instead of slowing down speaking rates, which previously was thought to increase fluency, DAF could be used to enhance fluency even when speaking at faster rates.

But it was at East Carolina University in Greenville, N.C., where Kalinowski, Stuart and Michael Rastatter, Ph.D., broke new ground in their research about the effects of DAF and frequency auditory feedback, or FAF, on stuttering. FAF allows users to hear their own voices with a slight shift in pitch — either higher or lower. The trio demonstrated both DAF and FAF could enhance fluency levels in various situations, from casual daily conversations, to phone calls, to speaking in front of audiences.

However, there was just one problem: providing people who stutter with a discreet, easy-to-use device incorporating DAF and FAF. Previously, large equipment or bulky portable devices using DAF technology were used to reduce stuttering.

"But carrying around a cumbersome, visible device makes you look 'different,' which is not very desirable for many who stutter," Kalinowski explains. If only such a device using DAF and FAF could be small enough to fit in an ear, like a hearing aid.

With this vision in mind, the team of researchers received help from East Carolina University's Office of Technology Transfer to obtain a patent for their concept in 1999. Then the Greenville-based Janus Development Group Inc. obtained the license and set about finding a company to produce the small, portable device.

"That was the challenge — taking this great idea that was on paper and bringing it to life," recalls Darwin Richards, a former Janus Development Group president involved in the project. But Janus succeeded in creating various prototypes and eventually brought the SpeechEasy® device to market in June 2001.

Today, three different models are available: behind-the-ear, in-the-canal (fitting in the ear canal with a visible outer shell); and completely-in-canal (placed completely in the ear canal). The device has been enhanced with features that reduce distracting non-speech-related sounds and is completely customizable for each individual user. Thousands, including Kalinowski, use the device with varying degrees of success.

“I never spoke on the telephone until 2002, after I started using the device,” Kalinowski says.  
“For many like me, it has made a tremendous difference.”

## Impact of the SpeechEasy® Device

As of November 2005 more than 5,600 SpeechEasy® devices have been sold worldwide. Approximately 75 to 80 percent of those who tried the device experienced an improvement in their speaking abilities, reducing stuttering by 50 to 90 percent. Though some experience immediate improvements in fluency, many experience improvement over time. Maximum benefits generally occur as users become more familiar and comfortable with the device.

During more than 10 years of experimentation and peer-reviewed research, the research team has demonstrated the power of DAF and FAF to reduce stuttering. A one-year longitudinal study has indicated that the SpeechEasy® device effectively maintains fluency in those who stutter. Longer-term studies also are underway to determine the device’s effectiveness in a broad cross-section of the population.

As Kalinowski, Richards and others point out, the SpeechEasy® device is not a cure for stuttering. “It’s similar to wearing glasses,” Richards says. “It helps you compensate for the problem. But if you do not wear the device, you may experience stuttering again, so we recommend wearing the device as often as possible to get the best results.”

Some users require little or no training when they first begin to use SpeechEasy®, and they become fluent rather quickly. But others need training, and may ultimately have limited or no success in using it. Those who have learned traditional speech therapy techniques and use them while wearing SpeechEasy® devices have noted higher levels of fluency enhancement and more natural-sounding speech. These traditional therapy techniques include reducing speaking anxiety through relaxation, or gaining control by slowing speech and gradually increasing it.

For the 3 million people who stutter in the United States, the SpeechEasy® device offers a glimmer of hope. “I’m not a shy person, so now that I’ve been using this device, I haven’t been holding back,” White says.

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