

# Good News for People With Speech Loss

A new tool that translates brain waves into words recently allowed a paralyzed man who couldn't speak to communicate verbally.

July 21, 2021 By [Kate Ferguson](#)

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Many people lose their ability to speak because of an illness or accident. But in what's being hailed as a "world-first breakthrough," findings published in the [The New England Journal of Medicine](#) announced the development of a new apparatus that can restore [speech](#) to people who lost the ability to talk, reports [ScienceAlert.com](#) in a story sourced from Agence France-Presse.

For the study, named "Brain-Computer Interface Restoration of Arm and Voice," researchers worked with a 36-year-old paralyzed man who had lost his ability to speak following a [stroke](#) at age 20. Scientists teamed with the patient to create a vocabulary of 50 words that were key to his everyday life.

Next, researchers implanted an electrode over his speech motor cortex—the part of the [brain](#) that controls speech. (The technique previously allowed scientists to decode signals and patterns that formed words in the vocal tract of brain surgery patients who could speak normally.)

For the next few months, investigators documented the patient's brain activity as he tried to speak the 50 words. Researchers used [artificial intelligence](#) via a computer [algorithm](#) that was trained to differentiate among these words and could generate more than 1,000 sentences.

Then scientists showed the participant questions on a screen that were fashioned from the words that were created. As the patient tried to speak a reply, a device recorded his brain activity, and the algorithm translated those patterns into a response to each question.

"To our knowledge, this is the first successful demonstration of direct decoding of full words from the brain activity of someone who is paralyzed and cannot speak," said Edward F. Chang, MD, the man's neurosurgeon, and a study coauthor.

"This is an important technological milestone for a person who cannot communicate naturally," said David Moses, PhD, a postdoctoral engineer at the University of California, San Francisco and one of the lead authors of the investigation. "It demonstrates the potential for this approach to give a voice to people with severe [paralysis](#) and speech loss."

To learn more about the effects of stroke on speech, read “[Suddenly, Everything Changes](#)” and “[Singer K-Ci Hailey: Stroke Survivor](#).”

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