

Abilex Device Restores Patients' Ability To Speak, Swallow

University of Western Ontario



A man injured in a car crash was able to eat by mouth for the first time in five months after using Abilex. A woman left without speech for three years after her stroke used Abilex and is now able to swallow and speak.

“ The Abilex device may look simple, but this life-changing product is backed by considerable design, engineering, and research expertise to help people who have difficulty swallowing or speaking exercise and strengthen their jaw, tongue and mouth.

It is the brainchild of Ruth Martin, Professor and Associate Dean for Graduate and Postdoctoral Programs in the Faculty of Health Sciences at Western University in London, Ontario. During her early career as a speech language pathologist in a neuro-rehabilitation clinic, Martin often worked with people who had difficulty swallowing because of strokes, brain injuries or throat and mouth cancers. Therapy was often slow and difficult, with few devices available to retrain both the tongue and the brain that controlled them.

In her later postdoctoral research, Martin worked on the hypothesis that electrical stimulation of the brain could

promote swallowing in people who had lost that ability. That's where her 'eureka' moment happened: what if there were an easy-to-use therapy that patients could use to exercise their tongue and jaw, and at the same time help re-wire the 'swallowing' parts of their brains?

It had to be lightweight so it wouldn't overload the jaw; malleable at one end so with little pressure people could get some movement even if they had little muscle control; and have a shape and form that would, without risking their health, help patients stimulate their 'natural' ability to wet food into a little ball in their mouths to make it easier to swallow.

It's this last point that's key. People with swallowing difficulties often lack the ability to create a swallow-able food ball – sometimes causing them to choke, or aspirate food into their lungs, leading to pneumonia.

Martin's lab tested several prototypes of various shapes and sizes. Clinical studies, including functional MRIs at Robarts Research Institute to test the device performance, took place from 2004-09.

WORLDiscoveries, the technology transfer office for Western University, helped Martin secure patents and development funding for the technology and promoted the device to potential licensing partners. In 2009, London-based medical innovator Trudell Medical International picked up the license for the device, which it now makes and markets as Abilex.

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