

News Release

For Immediate Release:

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Speech motor learning in profoundly deaf adults

NEW HAVEN, CT —Dr. David Ostry, of McGill University and Haskins Laboratories, and Dr. Sazzad M. Nasir of McGill University, have published a study in *Nature Neuroscience* that explores the question of why, in certain cases, deaf individuals are still able to speak coherently, sometimes years after losing their hearing. This study points out the critical role in speech motor learning of information from muscles and receptors in the vocal tract.

Speech production, like other sensorimotor behaviors, relies on multiple sensory inputs—audition, proprioceptive inputs from muscle spindles and cutaneous inputs from mechanoreceptors in the skin and soft tissues of the vocal tract. However, the capacity for intelligible speech by deaf speakers suggests that somatosensory input alone may contribute to speech motor control and perhaps even to speech learning. Nasir and Ostry assessed speech motor learning in cochlear implant recipients who were tested with their implants turned off. A robotic device was used to alter somatosensory feedback by small displacements of the jaw during speech. They found that, with training, implant subjects progressively adapted to the mechanical perturbations. Moreover, the corrections that they observed were for movement deviations that were exceedingly small, on the order of millimeters, indicating that speakers have precise somatosensory expectations. This study indicates that speech motor learning is substantially dependent on somatosensory input.

[Nature Neuroscience: Speech motor learning in profoundly deaf adults](#)

[NewScientist.com 18:01 14 September 2008: Deaf people feel their way to speech](#)

[ScienceNOW Daily News: 15 September 2008: Speaking without sound](#)

[Yahoo News UK: Breakthrough in understanding of speech offers hope to the deaf](#)

Agence-France-Presse, (pdf) in [English](#) and in [French](#).

[Neuropod podcast](#)

Der Spiegel SPIEGEL ONLINE (pdf) in [German](#).

Haskins Laboratories was founded in 1935 by the late Dr. Caryl P. Haskins. This independent research institute has been in New Haven, Connecticut since 1970 when it formalized affiliations with Yale University and the University of Connecticut. The Laboratories' primary research focus is on the science of the spoken and written word.

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