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Dynamic FM technology improves speech in noise performance of cochlear implant recipients

Murten, Switzerland, July, 2010

Phonak's Dynamic FM technology improves the speech in noise performance of Cochlear Corporation and Advanced Bionics cochlear implant (CI) recipients by up to 53 percentage points compared to traditional FM systems, according to the findings of a study by Dr. Jace Wolfe, Director of Audiology at the Hearts for Hearing Foundation.

The study, entitled Evaluation of Speech Recognition in Noise with Cochlear Implants and Dynamic FM*, was published in the Journal of the American Academy of Audiology* and is the first to describe the benefits of Dynamic FM use for CI recipients.

Wolfe found that using Phonak's Dynamic FM system resulted in better speech recognition in noise for Advanced Bionics recipients, relative to traditional FM, at noise levels of 55, 65, 70, and 75 dB SPL. These results included a 53 percentage point speech in noise performance improvement at 70 dB, 40 points at 65 dB, and 37 percentage points at 75 dB.

The performance of Cochlear Corporation CI recipients also improved with Dynamic FM, particularly when Autosensitivity was enabled; a 28 point speech in noise improvement was recorded at 70 dB, and a 20 percentage point improvement at 75 dB.

"Every subject in the study experienced improvements in speech recognition in noise using Dynamic FM compared to traditional fixed-gain FM," explains Jace Wolfe. "In quiet situations, the Dynamic FM system would mute itself or use automatic gains, making it very comfortable in terms of sound quality. When the environmental noise level increased, the gain also increased, helping CI users understand speech in noise better than they could with traditional FM."

"Communication in noise is often difficult for people with cochlear implants. In fact speech recognition scores in noise may be as much as 50 percentage points poorer than speech recognition in quiet**," adds Valentin Chaperon, CEO of Phonak. "As Jace Wolfe's study proves, Dynamic FM really bridges this gap."

With respect to another widely-used cochlear implant, MEDEL's OPUS2, comparative testing in noise between Dynamic FM and traditional FM by Goldbeck and Heldner*** recorded similarly positive results, including a maximum improvement in word recognition score of 59 percentage points, averaged over all patients and noise levels.

To read and download Phonak's free 'FM Solutions For Cochlear Implants' brochure, please visit: www.phonakpro.com/com/b2b/en/products/fm/transmitters.html (Downloads).

* *Evaluation of Speech Recognition in Noise with Cochlear Implants and Dynamic FM, Journal of the American Academy of Audiology/Volume 20, Number 7, 2009*

Read the abstract here: <http://www.ncbi.nlm.nih.gov/pubmed/19928395>

*** (Schafer and Thibodeau, 2004; Wolfe and Schafer, 2008b)*

**** Phonak in-house test, Murten, Switzerland, 2009.*

About Jace Wolfe

Jace Wolfe, Ph.D., is the Director of Audiology at the Hearts for Hearing Foundation. He also is an adjunct Assistant Professor in the Audiology Department at the University of Oklahoma Health Sciences Center. Dr. Wolfe is the co-author of *Programming Cochlear Implants*, a textbook published in March 2010. He serves as the editor for the American Speech Language Hearing Association's Division 9 journal and is a member of the Better Hearing Institute's Pediatric Advisory Board, as well as the Audiology Advisory Boards for Cochlear Americas and the Phonak Hearing Aid Company. He also serves on the editorial board of *The Hearing Journal*, and is a reviewer for several peer-reviewed journals. Additionally, Dr. Wolfe co-authors a periodic column entitled "Small Talk" in *The Hearing Journal*, and he has published numerous articles in professional peer-reviewed and trade journals. His areas of interests are pediatric amplification and cochlear implantation, personal FM systems, and signal processing for children. He provides clinical services for children and adults with hearing loss and is also actively engaged in research in several areas pertaining to hearing aids, cochlear implants, and personal FM systems.

About Phonak

Headquartered near Zurich, Switzerland, Phonak, a member of the Sonova Group, has developed, produced and globally distributed state-of-the-art hearing systems and wireless devices for more than 60 years. The combination of expertise in hearing technology, mastery in acoustics and strong cooperation with hearing care professionals allows Phonak to significantly improve people's hearing ability and speech understanding and therefore their quality of life.

Phonak offers a complete range of digital hearing instruments, along with complementary wireless communication systems. With a worldwide presence, Phonak drives innovation and sets new industry benchmarks regarding miniaturization and performance.

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