Personal reflections on the multichannel cochlear implant and a view of the future
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Profoundly deaf people can have trouble mixing socially, and children born deaf rarely develop spoken language compared with persons who hear. Both groups can benefit from the cochlear implant. It has a microphone that passes signals to a small processor worn behind the ear. Coded information is then transmitted through the skin to the implanted unit behind the ear. This transmission stimulates the hearing nerve in the inner ear, and the responses pass to the brain where they are understood as speech. Most profoundly deaf people can benefit from and should seek professional help. Cochlear implants can also benefit people personally and emotionally and brings them greater job opportunities.

Cochlear implants: Current designs and future possibilities
Blake S. Wilson, Michael F. Dorman

The cochlear implant is the most successful of all neural prostheses developed to date. It is the most effective prosthesis of restoration of function, and the number of people who have received a cochlear implant outnum- ber the recipients of other types of neural prostheses by orders of magnitude. We provide an overview of cochlear implants from the perspective of two designers of implant systems. The design and performance of present-day systems are described, as are strengths and limitations of those systems. Possibilities for improvement and future designs are presented in the concluding section.
Integration of acoustic and electrical hearing
Christopher Turner, PhD, et al.

Hearing aids cannot satisfactorily improve speech recognition for some individuals with severe high-frequency hearing loss; however, these individuals may retain too much residual hearing to qualify as candidates for a cochlear implant. Studying results from the Iowa/Nucleus Hybrid cochlear implant, which is designed to preserve patients' residual low-frequency hearing while supplementing high-frequency hearing, we found that it improved subjects' speech recognition in competing backgrounds and demonstrated their ability to integrate acoustic and electrical hearing, even under conditions of severe distortion to normal cochlear place-frequency mapping. This apparent plasticity of the auditory system may lead to some new developments for improved cochlear implants in the future.

Music perception in cochlear implant users and its relationship with psychophysical capabilities
Ward R. Drennan, PhD; Jay T. Rubinstein, MD, PhD

A portion of the veteran population is severely or profoundly hearing impaired as a result of many different causes, such as head trauma, noise-induced hearing loss, ototoxic drugs, or genetics. These people are often treated with a cochlear implant. The quality of life of these veterans could be improved dramatically with improvements to cochlear implant technology that improve music perception. This review discusses research relevant to hearing music with a cochlear implant.