



ALL EARS

Discover the Benefits of Cochlear Implants

By Brian Justice

Hearing is a critical sense, and yet up to 3 out of every 1,000 children in the United States are born with hearing loss, and around 15% of adults have trouble hearing, which increases with age. In fact, more than half of people over 75 have disabling hearing loss.¹ Hearing aids are the first recourse but are often inadequate for those with debilitating hearing loss, making them candidates for cochlear implants.

Cochlear implants are appropriate for people who are severely hard of hearing (i.e., those who understand less than half of what they hear) and the profoundly deaf (i.e., those who cannot hear speech but can hear loud sounds). The implant has external and internal components. The external portion is positioned behind the ear and includes a microphone to capture environmental sounds, a speech processor to organize them, and a transmitter and receiver that converts them into electric signals. The internal portion is placed under the skin and houses electrodes that transmit those signals to the auditory nerve. Cochlear implants cannot

fully restore normal hearing, but they can enhance a deaf person's ability to comprehend speech and hear other sounds in their environment.²

As of July 2022, approximately 183,000 such devices had been implanted.¹ The benefits go beyond improved hearing, notes Regina Duarte, CMA (AAMA), a medical assistant with Marshall Family Medicine in California. "Cochlear implants help patients understand speech better than hearing aids," she says. "They also help them feel more integrated with their hearing family and society."

Support Systems

The Food and Drug Administration (FDA) approved cochlear implants for adults in the mid-1980s and for children as young as 9 months in 2020.²

"Hearing aids are always our first tool for hearing loss, and the FDA requires trials for them first," says Huseyin Isildak, MD, director of the cochlear implant program at Stony Brook Medicine in New York. "They

want to see that the patient tried hearing aids, but they didn't work, which makes [patients] eligible for cochlear implantation."

Research is ongoing to understand the nature of the procedure and how implants can better accommodate patients.

"The future is promising," says Dr. Isildak. "They are working on [fully implantable devices], entirely under the skin with nothing visible. They are also studying the degradation of hair cells, which causes hearing loss with age, perhaps making surgery less likely in the future because it will be replaced by gene therapy."

The research includes using electrodes to target specific regions of the cochlea, a cavity in the inner ear that plays a vital role in hearing, and combining a cochlear implant in one ear with another implant or a hearing aid in the other.²

Further, a study published in 2022 by New York University Langone Health examines the pivotal role of neuroplasticity (i.e., the brain's ability to adapt) in enhancing the effectiveness of implants. Researchers investigated how stimulating the locus

Community, Culture, and Cochlear Implants

The Deaf community is vibrant and robust, with highly evolved sign language as a primary form of communication. Cochlear implants evoke different reactions within the community, reflecting multiple perspectives and stressing the importance of understanding them. Some deaf people believe that implants enable autonomy, while others are concerned about the potential erosion of Deaf culture and sign language.

Members of the medical community must recognize and respect these different perspectives. Meanwhile, technology will inevitably improve, along with the results of implants. So, embracing and honoring these viewpoints will become even more crucial to fostering understanding and dialogue about hearing treatments and practices within the Deaf community.⁶

coeruleus—a part of the brain located in the lower part of the brainstem—affects the learning process of using cochlear implants. Deaf rats received implants, and those who received this stimulation learned to use them in as little as three days. Those without stimulation took up to 16 days to reach the same level of functionality. Stimulating neuroplasticity may help people with hearing implants adjust more quickly, improving outcomes and satisfaction.³

Hear We Go

Get the facts straight on stubborn myths about cochlear implants:

Myth: Insurance will not cover cochlear implants.

Fact: Most insurance carriers and plans—as well as Medicare—cover cochlear implants but not hearing aids, which patients may need to pay for out of pocket.⁴ Advocacy groups can also help people access cochlear implants.

Myth: Cochlear implant surgery is a dangerous operation.

Fact: Cochlear implant surgery is safe and well tolerated, though specific risks are associated with it. In addition to anesthesia risks, other factors include major complications, which fewer than 3% of implant recipients experience. Device issues are possible, but only about 4% of recipients experience device failures requiring removal. Less than 2% of recipients experience postoperative infections.⁴ In fact, the implant incurs a Class 2 wound, categorized as clean contaminated because of the low risk of complications.^{4,5}

Myth: People with cochlear implants cannot undergo MRIs.

Fact: Patients with cochlear implants *can* undergo MRIs, but the area scanned should not include the magnet in the implant. When scanning that area is necessary, the magnet may need to be removed temporarily. Other risks associated with MRIs include unintentional device movement, damage, and discomfort.⁴

Sound Effects

The impact of undergoing cochlear implant surgery can be appreciated by speaking with patients who have implants and the people who work with them.

“People think it’s like glasses. Boom! You have glasses, and now you can see,” says Jennifer Chase of El Dorado Springs, Missouri, who first received implants in 2015. “I can hear, but if there’s a lot of background noise, I can’t carry on a conversation with someone.” Like many, she has become an adept lip-reader. “I might miss some key words here and there, but compared to my hearing aids, it’s better.”

Donna Sorkin has multiple perspectives on the impact of cochlear implants. She grew up with normal hearing, lost it, received implants in 1992, and now is the executive director of the American Cochlear Implant Alliance in McLean, Virginia. “It was life-changing,” she says. “I grew up hearing, and when that changed dramatically, I couldn’t see a path forward. Getting a cochlear implant gave me my life back.”

Often, medical assistants are the first people patients see at the physician’s practice

and therefore can provide a reassuring and comforting experience for patients with cochlear implants.

“Speaking a little more loudly helps, along with good diction and allowing them to see your face,” says Jacob Leaman, CMA (AAMA), a medical assistant at Deaconess Clinic Memorial in Evansville, Indiana.

“Keeping the patient informed helps with their fears and anxieties,” adds Duarte. “Reading material, websites, and support group information help the patient, their family, and their friends. But the most helpful thing is to let patients know you are there for them and will guide them through the process and after.”

“Medical assistants play an important role for patients with hearing loss,” says Terry Zwolan, PhD, CCC-A, director of audiology access and standards of care for Cochlear Americas. “Simply asking whether [patients] are experiencing hearing issues adds value to the appointment, as well as making sure they understand the results, especially if they do not hear all of the information provided.”

Chase sums up the profound impact that hearing, however imperfect, can have. “It saved my sanity, and I’m thankful for the technology,” she says. “I can’t imagine living without hearing my grandson laugh.” ♦

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