

DISCOVER BETTER HEARING

A Beginner's Guide to Cochlear Implants



ADVANCED
BIONICS
POWERFUL CONNECTIONS

THE SILENT HISTORY AND BRIGHT FUTURE OF HEARING

Making sound decisions from the inside out

For cochlear implant candidates, hearing outcomes have never been better than they are today. Just a hundred years ago, most people with severe-to-profound hearing loss lived their entire lifetime in isolated silence. This wasn't by choice. It was because the science they needed didn't exist.

Now that we live longer, medical technology is innovating even faster. It is embedded in our daily lives more every day. Today, you can choose our future-proof implant paired with a processor that seamlessly connects you via universal Bluetooth.® You can connect from anywhere! The processors come in different colors and are even fully waterproof! The outlook for hearing innovation is extremely bright. The next-generation of hearing is already here!

Although what lies ahead may be unknown, in the history of hearing medicine, today is the best time to qualify for a cochlear implant. Procedures are safer and more powerful than ever. From hearing aids to cochlear implants, today's hearing solutions can connect you to the moments you love.

*“I’m able to hear
and experience life
with my wife and kids,
and it’s all worth it!”*

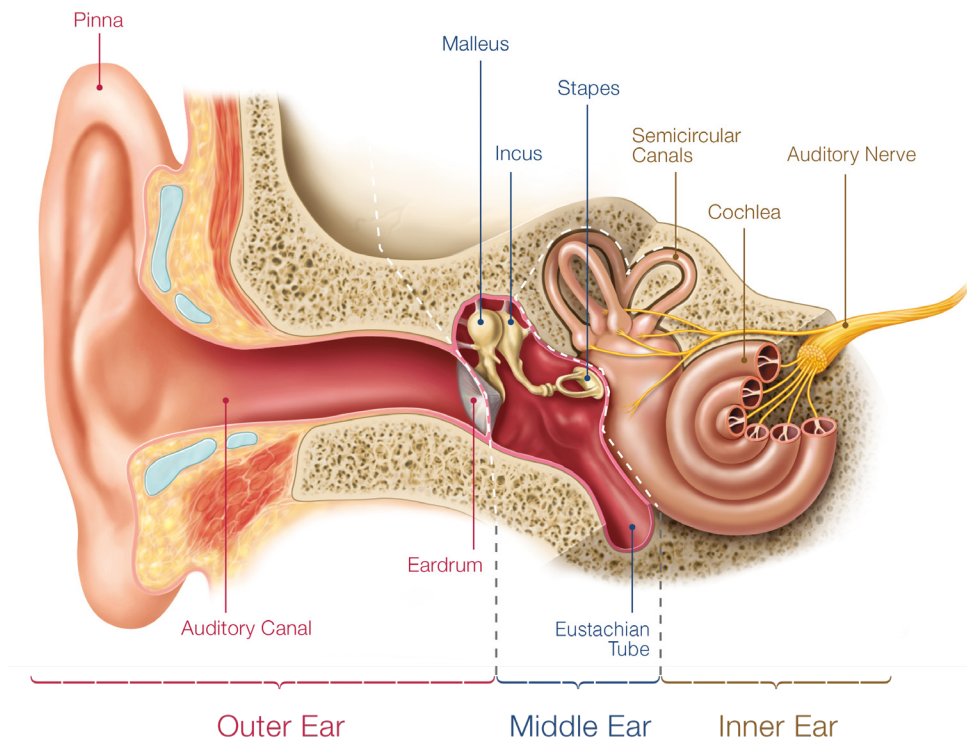
~David B. Cluff

20-year cochlear implant recipient, father,
husband, photographer, and blogger.



HOW HEARING WORKS

Hearing is often taken for granted, but it's a complex process. For optimal hearing, the ear and brain need to work closely together. The ear receives sounds and then sends them to the brain for interpretation. Hearing loss can occur when there is a problem with any of these components. An audiologist can help identify the source with a hearing test. Most of the time, the issue occurs in the inner ear (or cochlea), where sound is transferred to the hearing nerve.



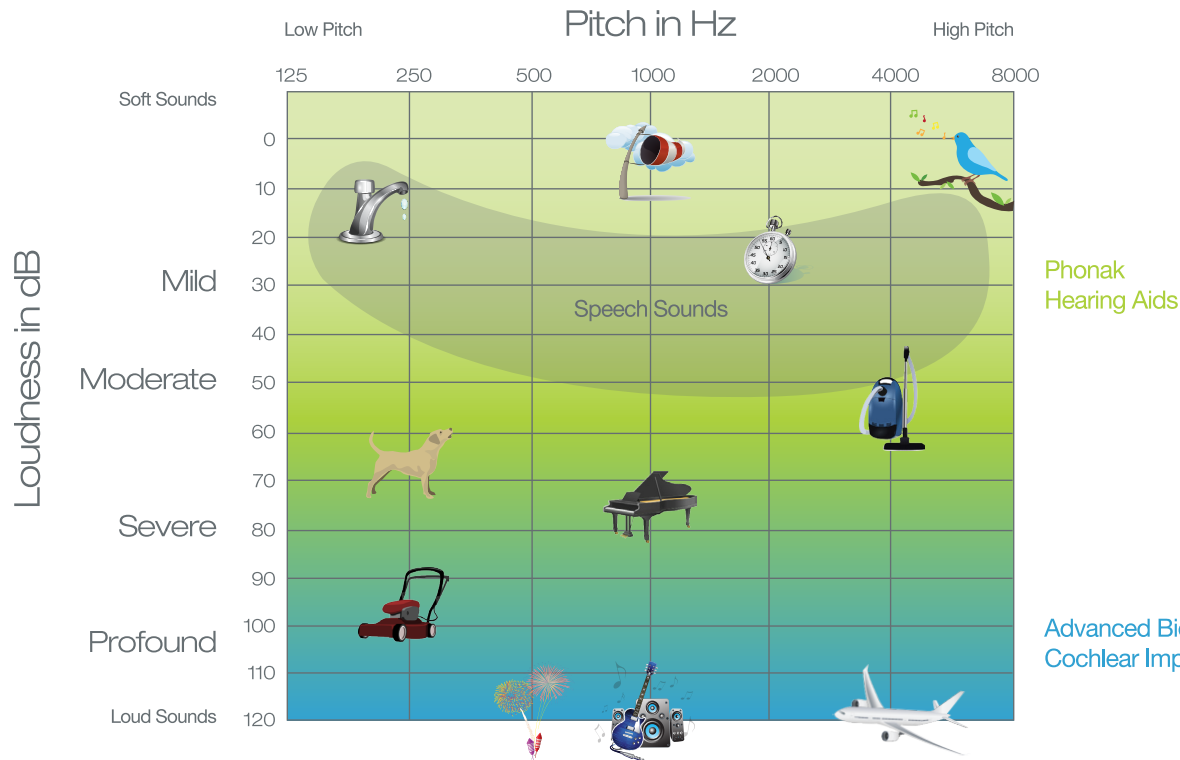
Outer Ear acts as a funnel to collect sound vibrations and conduct them through to the eardrum.

Middle Ear amplifies the sound vibrations and conducts them to the inner ear.

Inner Ear contains the cochlea, which converts sound vibrations into neural impulses that travel up the auditory nerve.

THE DEGREES OF HEARING LOSS

An audiogram is used to describe hearing loss. It's broken up into four degrees that cover differences in loudness and pitch. Seeing where your hearing test results are on the audiogram helps your hearing care professional determine your best treatment options.

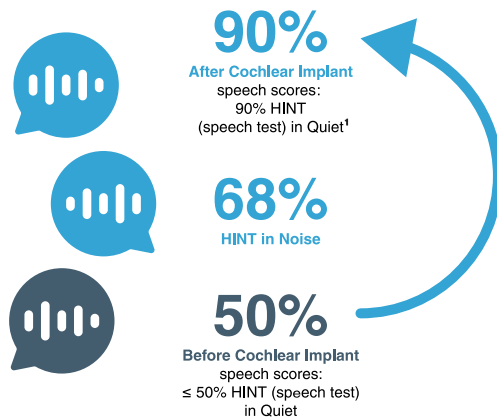


Sonova is the parent company of Advanced Bionics and Phonak. This means Sonova can offer a full range of hearing solutions, from headphones to cochlear implants.

TREATING YOUR HEARING LOSS TODAY IS AN INVESTMENT IN YOUR FUTURE

Aging is a natural part of life. As the years go by most people experience a decline in the ability to hear as well as they did when they were younger. For those with a pre-existing history of hearing loss, the change in hearing can make an even larger impact on their quality of life as they enter, and live out, their golden years.

Possible Improvements in Speech Understanding After Getting a Cochlear Implant



Other Possible Improvements After Getting a Cochlear Implant²⁻⁵



Quality of Life



Self-Esteem



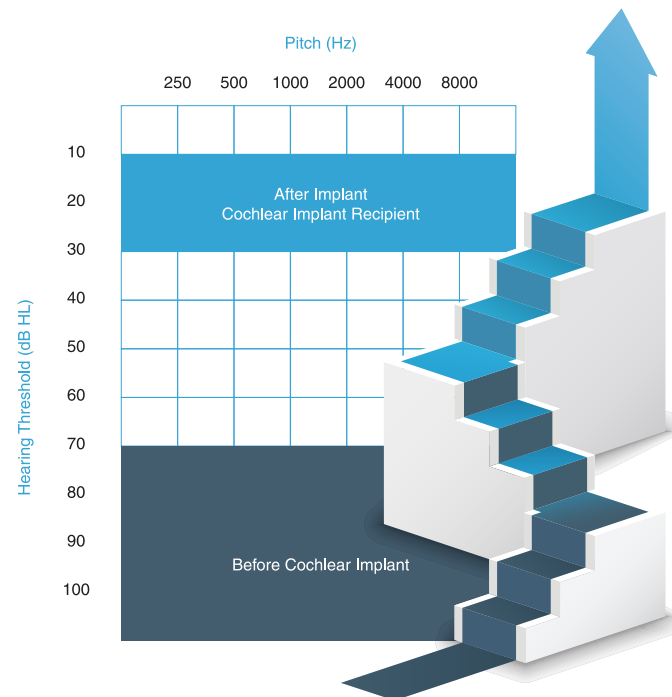
Daily Activity




Employment



Social Engagement





***“My quality of life
and ability to hear have
improved dramatically
since I was implanted.”***

~Rebecca Alexander

Advanced Bionics cochlear implant wearer,
author, advocate, and psychotherapist



New studies show that in at-risk older adults, treating their hearing loss slowed down their cognitive thinking and memory decline by 48%.⁶

MARVEL FROM EAR TO EAR

Today you can get more from every moment and enjoy your life in stereo. Natural hearing helps you develop powerful connections to the world around you. It requires both of your ears working in harmony. When you hear with both ears, your brain can map and analyze the sounds around you. This helps you know where sounds come from and understand better in noisy places.

From ear to ear and year to year, Advanced Bionics solutions offer the only hearing solution designed for a completely natural two-ear hearing experience. Additionally, Phonak hearing aid users enjoy a virtually seamless transition to AB cochlear implants, which share numerous features and accessories.*

*Advanced Bionics cochlear implants are indicated with severe to profound bilateral sensorineural hearing loss (≥ 70 dB HL) and for pediatrics with profound bilateral sensorineural hearing loss (≥ 90 dB HL).

The benefits of hearing with Advanced Bionics linked two-ear technology

1. A more natural 360-degree hearing experience
2. Richer and clearer sound quality
3. Reduced listening effort^{7,8}
4. Superior speech understanding^{7,9}
5. Better hearing from all directions with **CROS** and an Advanced Bionics cochlear implant^{10,11}

HOW A COCHLEAR IMPLANT WORKS

A cochlear implant system includes several pieces of technology that work together to bypass the cochlea—restoring hearing by sending sound directly to the hearing nerve. The first is an internal component (the implant and electrode array) which is implanted by a surgeon. And the second is a series of external components that is worn on the ear and attaches to the implant (the headpiece and processor).



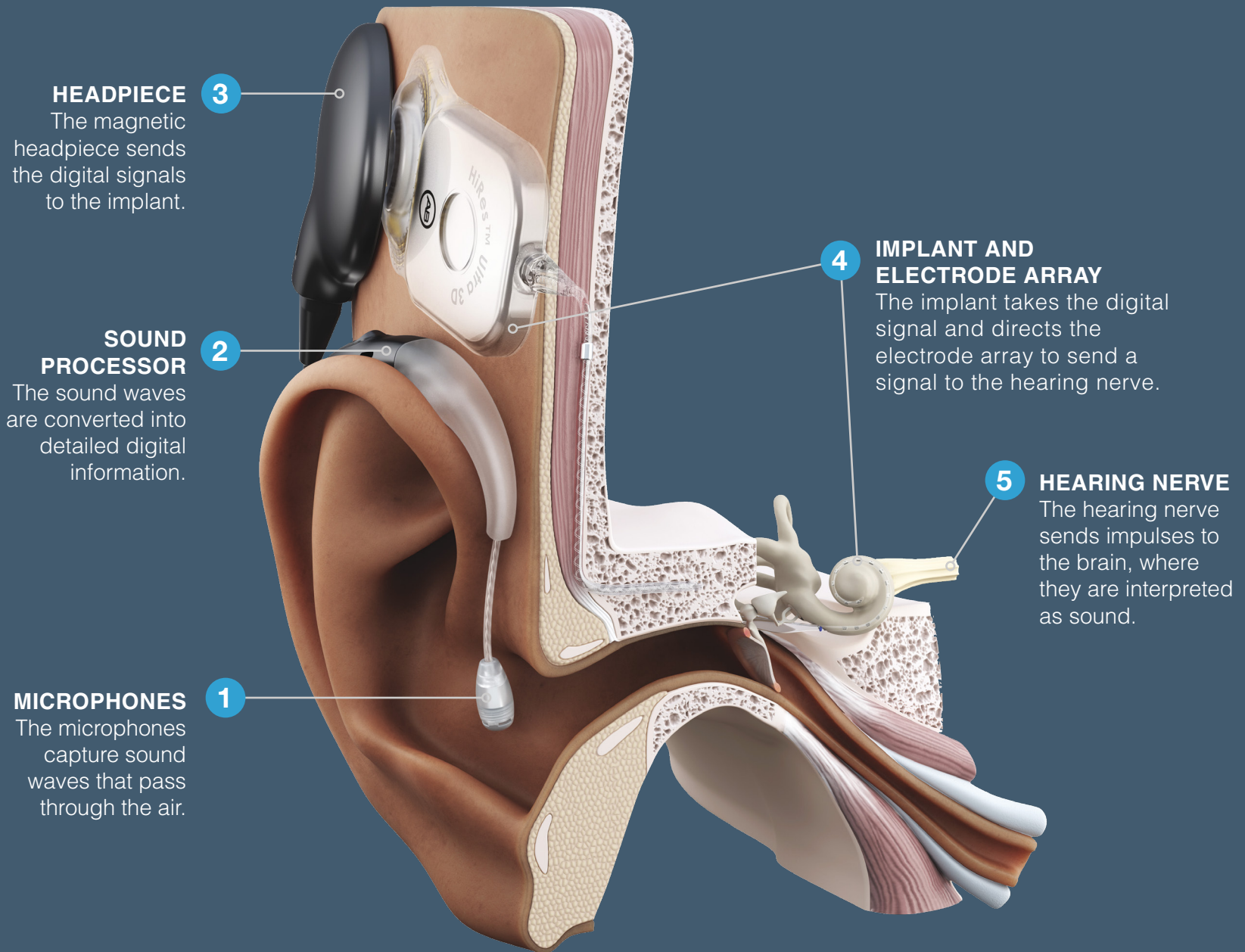
“There’s no way to describe it. But I can tell you that it is the best thing I’ve ever done for myself in terms of my ability to reassimilate into the world. I’m more confident and able to be my natural and authentic self.”

~Rebecca Alexander

Advanced Bionics cochlear implant wearer,
author, advocate, and psychotherapist



Advanced Bionics has a team that specializes in insurance and reimbursement.



THE COCHLEAR IMPLANT PROCEDURE: WHAT TO EXPECT

Hundreds of thousands of people around the world have undergone the quick, routine, same-day surgical procedure required to unlock the significant benefits of hearing with a cochlear implant. While any type of surgery has some associated risks, complications are extremely rare. Most people go home the same day or the very next day.

Surgery Day

The procedure itself is relatively simple. The surgery is done under general anesthesia and typically takes one to three hours, with some additional preparation and recovery time.

The Operation

1. The doctor makes an incision approximately 6cm to 10cm long in the skin behind the ear to access the area where the implant will be placed.
2. The doctor creates a pocket area for the implant to be placed.
3. The doctor opens access down to the cochlea where the electrode is inserted into the cochlea.
4. During insertion, the unique AIM system* from Advanced Bionics can use the electrode to monitor the function of your cochlea, providing your surgeon with all available information for increased accuracy.
5. The implant is checked to confirm functionality, and the responsiveness of the hearing nerve may also be evaluated.
6. The doctor will close the incision and apply a bandage.

* The AIM system is not available in all clinics.

Waking up from surgery

After surgery, you will be brought into the recovery room. When you wake up, you may feel groggy and even a little nauseous from the anesthesia and any prescribed sedatives. Sometimes the doctor prescribes anti-nausea medication. There may be some temporary soreness or tenderness from the incision and surgery.

After surgery

Depending on your doctor's recommendation for your specific circumstances, you will either go home the same day or stay the night in the hospital.

When you go home, you will receive written post-surgery guidelines. They cover bathing and bandage treatment, medication procedures, and possible temporary activity restrictions. It is important to read, understand, and follow these instructions, as the success of your implant depends on your healing process.

Some people may receive antibiotics or other instructions to prevent infection. All patients are instructed to watch for symptoms that could be signs of infection such as swelling, redness, fever, bleeding, and/or excessive pain. If these or other symptoms provided by your doctor occur, you should seek treatment immediately.

Meanwhile, the natural healing process will continue—any discomfort and pain should subside, and most other possible post-surgical symptoms will dissipate over time. Now that the surgery is over the most exciting time, “activation day” is just around the corner.



Using the appropriate hearing solution can help delay or reduce the risk of developing dementia.⁶

CAN I AFFORD A COCHLEAR IMPLANT?

Unlike hearing aids, cochlear implants are often covered by Medicare* and private insurance. Reach out to your insurance company or contact our Insurance Reimbursement specialists for assistance in determining your specific coverage.

For candidates residing in Canada, contact your local cochlear implant center to determine coverage. Every health insurance plan is different and some will completely cover the cost of a cochlear implant. Coverage varies by province, territory, and your degree of hearing loss.

Over 700,000
*people across the world have
cochlear implants.¹²*

*Cochlear implants are covered for Medicare beneficiaries who meet the CMS (Centers for Medicare & Medicaid Services) criteria for coverage and coverage for adult Medicaid recipients varies according to state specific guidelines.

AB'S MOST ADVANCED AND RELIABLE COCHLEAR IMPLANT

Advanced Bionics is the only manufacturer to have received a superiority claim from the FDA when it comes to its technology. With about 800 worldwide patent filings, performance and innovation are at the forefront of all we do to provide you with the best hearing possible.

Future-Proof Technology

Our HiRes™ Ultra 3D cochlear implant gives you reliability and quality you can count on. It's future-ready, which means it has room to “grow.” Not only can you enjoy better hearing now, but it will work with new technology to continue to improve your hearing in years to come.

Hassle-Free MRI

Our HiRes Ultra 3D cochlear implant enables flexible, convenient, and pain-free MRI exams. In the past, getting an MRI with a cochlear implant required the surgical removal and reinsertion of the magnet. This would delay hearing after an MRI. With the HiRes Ultra 3D there is no lengthy preparation or wait time, you simply put your sound processor back on after the procedure to hear again.



People who have received an Advanced Bionics cochlear implant years ago have had up to five opportunities for significant technology upgrades just in the last 20 years.

Discreet, Strong, and Flexible

The HiRes Ultra 3D is designed to exceed industry standards for all-day use and impact resistance. This means you can enjoy all of life's adventures without limits. It is made to be easy to insert and flexible for surgeons. This means less drilling and shorter surgery time. Its thin profile (4.5 mm) and small size offer a discreet solution once implanted.

Gentle on the Inner Ear

Our implant's tiny electrode array is what stimulates your hearing nerve. Our electrodes are designed to protect the delicate cochlea structures.¹³⁻¹⁶ It also provides optimal coverage of the cochlea for the full spectrum of sound.^{17,18}



*The HiRes Ultra 3D Cochlear Implant has been awarded the
Medtech Breakthrough Award 2019 for Best Medical Device Solution.*

A SEAMLESS SOLUTION FOR YOUR LIFESTYLE



Working out

Waterproof features help you hear your best while at play. Go swimming or build up a sweat working out. Your devices were made for it! Now you can stay active without worrying about device damage.

Meeting with your audiologist

Hard to find time for a trip to your hearing care professional? Remote Programming allows you to have virtual appointments from your smartphone or tablet. You can even get your CI settings adjusted without a visit to the clinic.*



Staying connected

Today, staying connected with friends and family means lots of calls. **Built-in Bluetooth connectivity** allows you to hear every word of your voice or video calls—right to your ears.

* Remote Programming is recommended for recipients 13 years and older.



AB's cochlear implant systems feature universal Bluetooth connectivity.

A night out on the town

Hear the conversation with the people in front of you while suppressing background noise. Your CI allows you to focus your ears on what you want to hear most.



At work or in social settings

There are discreet accessories to help you hear better in meetings and social gatherings without extra equipment attached to your sound processor.

Relaxing at home

When you're home watching TV, you can stream audio directly to your ears. Those watching with you will not notice a change, but your CI system can ensure you hear at the perfect volume.



TALK TO PEOPLE WHO HAVE BEEN THERE

Advanced Bionics Mentor Program

Sometimes your hearing loss journey may feel isolating, especially if you don't have anyone to talk to about it. That is why we have a robust mentor program that connects you with real people who use Advanced Bionics. They were once at the same crossroads you are now. Having been on this journey longer, they have useful advice to share and personal first-hand stories to tell. Like you, they had a decision to make and chose an Advanced Bionics cochlear implant. This is your opportunity to ask them why.



"Cochlear implant mentors are real people who have been through the worries and joys of cochlear implantation."

~Jack Leisure

Veteran, photographer, small business owner, Advanced Bionics mentor who hears with Advanced Bionics cochlear implant technology.



THIS IS JUST THE BEGINNING

We understand that you are still very much at the start of this process. An ideal partner has decades of experience and is always looking forward to offering more. Remember that we are not only here for you today, but we will continue to support you throughout the remainder of your hearing journey. Choosing Advanced Bionics means never having to manage your hearing loss alone.

Let's get you started on your way to better hearing

Contact us now. hear@advancedbionics.com 1.866.844.HEAR (4327)

REFERENCES

1. Findlen, U. & Agrawal, S. (2023, June). Classifier-based Noise Management Technology Helps Children with Cochlear Implants Listen in Noise. Podium and poster presentation at the American Cochlear Implant Alliance Annual Meeting, Dallas, TX.
2. Hornsby, B., Huang, H., Sohail, H., Gifford, R., Ricketts, T.A. & Picou, E.M. (2023, March). Effort and fatigue while listening: sustained speech-processing with cochlear implants. Poster presented at the American Auditory Society Annual Meeting, Scottsdale, AZ.
3. Buechner, A., Bardt, M., Kliesch, S., & Brendel, M. (2022, May). Influence of Automatic Scene Classification Systems in Hearing Devices on Speech Perception in Real-life Situations. Poster presented at the American Cochlear Implant Alliance Annual Meeting, Washington, DC.
4. Dorman, M.F., Cook Natale, S., & Agrawal, S. (2018). The Value of Unilateral CIs, CI-CROS and Bilateral CIs, with and without Beamformer Microphones, for Speech Understanding in a Simulation of a Restaurant Environment. *Audiology & neuro-otology*, 23(5), 270–276. <https://doi.org/10.1159/000493844>
5. Dwyer, R.T., Kessler, D., Butera, I.M., & Gifford, R.H. (2019). Contralateral Routing of Signal Yields Significant Speech in Noise Benefit for Unilateral Cochlear Implant Recipients. *Journal of the American Academy of Audiology*, 30(3), 235–242. <https://doi.org/10.3766/jaaa.17117>
6. Lin, FR, Pike, JR, Albert, MS, Arnold, M, Burgard, S, Chisolm, T, Couper, D, Deal, JA, Goman, AM, Glynn, N, Gmelin, T, Gravens-Mueller, L, Hayden, KM, Huang, AR, Knopman, D, Mitchell, CM, Mosley, T, Pankow, JS, Reed, NS, Sanchez, V, Schrack, JA, Windham, BG, Coresh, J, Hearing intervention versus health education control to reduce cognitive decline in older adults with hearing loss in the USA (ACHIEVE): a multicentre, randomized controlled trial, *The Lancet*, 2023.
7. Hornsby, B., Huang, H., Sohail, H., Gifford, R., Ricketts, T.A. & Picou, E.M. (2023, March). Effort and fatigue while listening: sustained speech-processing with cochlear implants. Poster presented at the American Auditory Society Annual Meeting, Scottsdale, AZ.
8. Findlen, U. & Agrawal, S. (2023, June). Classifier-based Noise Management Technology Helps Children with Cochlear Implants Listen in Noise. Podium and poster presentation at the American Cochlear Implant Alliance Annual Meeting, Dallas, TX.
9. Buechner, A., Bardt, M., Kliesch, S., & Brendel, M. (2022, May). Influence of Automatic Scene Classification Systems in Hearing Devices on Speech Perception in Real-life Situations. Poster presented at the American Cochlear Implant Alliance Annual Meeting, Washington, DC.
10. Dorman, M. F., Cook Natale, S., & Agrawal, S. (2018). The Value of Unilateral CIs, CI-CROS and Bilateral CIs, with and without Beamformer Microphones, for Speech Understanding in a Simulation of a Restaurant Environment. *Audiology & neuro-otology*, 23(5), 270–276. <https://doi.org/10.1159/000493844>
11. Dwyer, R.T., Kessler, D., Butera, I. M., & Gifford, R. H. (2019). Contralateral Routing of Signal Yields Significant Speech in Noise Benefit for Unilateral Cochlear Implant Recipients. *Journal of the American Academy of Audiology*, 30(3), 235–242. <https://doi.org/10.3766/jaaa.17117>
12. National Institute on Deafness and Other Communication Disorders, "Cochlear Implants." <https://www.nidcd.nih.gov/health/cochlear-implants#:~:text=Children%20and%20adults%20who%20are,adults%20and%2065%2C000%20in%20children>
13. Dietz A, Iso-Mustajärvi, M, Sipari, S, Tervaniemi, J, Gazibegovic, D; Evaluation of a new slim lateral wall electrode for cochlear implantation: an imaging study in human temporal bones. *Eur Arch Otorhinolaryngol*. 2018 Jul;275(7):1723-1729.
14. Frisch, CD, Carlson, ML, Lane, JI, Driscoll, CL; Evaluation of a new mid-scala cochlear implant electrode using microcomputed tomography. *Laryngoscope*. 2015 Dec;125(12):2778-83.
15. Hassepass, F, Bulla, S, Maier, W, Laszig, R, Arndt, S, Beck, R, Traser, L, Aschendorff, A; The New Mid-Scala Electrode Array: A Radiologic And Histologic Study In Human Temporal Bones. *Otology & Neurotology* 2014; 35(8):1415-20.
16. Dietz, A, Gazibegovic, D, Tervaniemi, J, Vartiainen, VM, Löppönen, H; Insertion characteristics and placement of the Mid-Scala electrode array in human temporal bones using detailed cone beam computed tomography. *Eur Arch Otorhinolaryngol*. 2016 Dec;273(12):4135-4143.
17. Bnghalem, A, Gazibegovic, D, Saadi, F, Tazi-Chaoui, Z; Use of a mid-scala and a lateral wall electrode in children: insertion depth and hearing preservation. *Acta Otolaryngol*. 2017 Jan;137(1):1-7.
18. Olga Stakhovskaya, corresponding author Divya Sridhar, Ben H. Bonham, and Patricia A. Leake; Frequency Map for the Human Cochlear Spiral Ganglion: Implications for Cochlear Implants. *J Assoc Res Otolaryngol*. 2007 Jun; 8(2): 220–233.

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