

Cochlear Implants

What are cochlear implants?

Cochlear implants are U.S. Food and Drug Administration (FDA)-approved, surgically-implanted medical devices that treat hearing loss. Cochlear implants replace the function of a damaged inner ear (cochlea) and are designed to mimic natural hearing.

Who do cochlear implants help?

Cochlear implants have been FDA-approved for more than 30 years. For adults of all ages, cochlear implants are a hearing loss solution for those with moderate to profound sensorineural hearing loss, also known as nerve hearing loss, receiving limited benefit from hearing aids. Limited benefit can translate into only hearing half of what is said in a conversation. Cochlear implants have become the established treatment for children as young as 12 months with severe to profound sensorineural hearing loss.¹

Why are cochlear implants significant?

The impact of hearing loss is substantial around the world and in the United States. Hearing loss affects 360 million people worldwide and almost 50 million Americans.^{2,3}

Nearly two million Americans could be candidates for cochlear implant technology, but only 5 percent of patients who can benefit have been treated.^{4,5} Cochlear implants are the only proven medical treatment option for those with severe to profound hearing loss.

How can cochlear implants help?

From those in the first years of their lives all the way to those in the last years of their lives, cochlear implants have improved the lives of hundreds of thousands of people around the world.

Nearly one in three people over the age of 65 have hearing loss, impacting communication and contributing to social isolation, anxiety, depression and cognitive decline.⁶ In adults, typically within a short amount of time after implantation, better speech understanding is achieved. Studies show adults with cochlear implants understand sentences on average almost seven times better than they could with hearing aids.⁷ Additionally, adults with cochlear implants hear nearly four times better in noisy environments than with hearing aids.⁸

Providing a child access to sound when a hearing loss is first detected is very important. Cochlear implants are designed to help a child develop speech, and research shows those implanted early in life have speech performance scores closest to scores of normal hearing children.^{9,10} While many early intervention factors contribute to a child succeeding with a cochlear implant, research and over two decades of experiences demonstrate cochlear implants provide improved speech and language development, quality of life and educational outcomes for children with hearing loss.¹¹

How do cochlear implants work?

There are two main components to a cochlear implant system, the implant and the sound processor:

The internal implant, which is the surgically implanted device that contains the processing chip, a removable magnet and the electrode array.

The external sound processor, which contains the processing unit, microphones, battery module and a coil.



The Nucleus® Implant

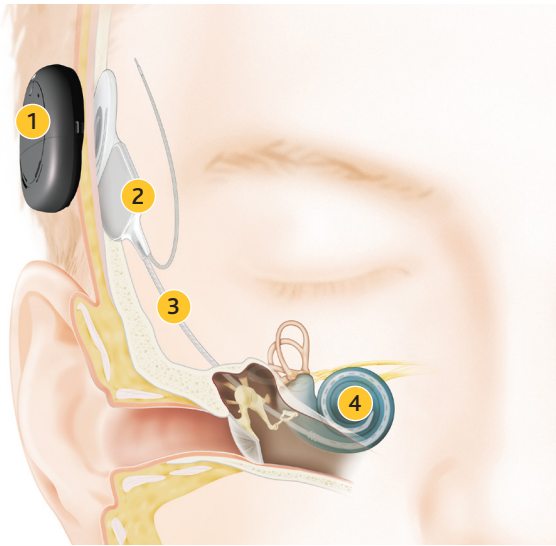
1. Magnet
2. Processing Chip
3. Electrode Array

Hear now. And always



Cochlear provides two sound processor wearing options to fit lifestyle needs and preferences:

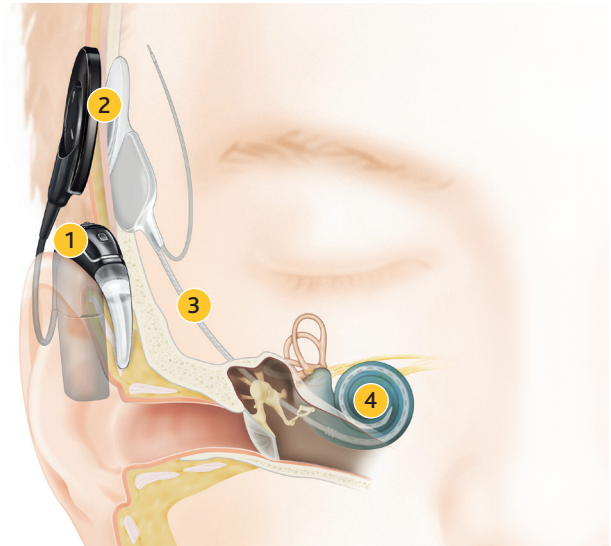
The Kanso® Sound Processor, off-the-ear option



HOW THE KANSO SYSTEM WORKS

- 1 Microphones on the Kanso Sound Processor pick up sounds, and the sound processor converts them into digital information.
- 2 This information is transferred to the implant just under the skin.
- 3 The implant sends the digital sound signals down the electrode into the cochlea.
- 4 The hearing nerve fibers in the cochlea pick up the signals and send them to the brain, which is understood as sound.

The Nucleus 7 Sound Processor, behind-the-ear option



HOW THE NUCLEUS 7 SYSTEM WORKS

- 1 Microphones on the sound processor pick up sounds, and the processor converts them into digital information.
- 2 This information is transferred through the coil to the implant just under the skin.
- 3 The implant sends digital sound signals down the electrode into the cochlea.
- 4 The hearing nerve fibers in the cochlea pick up the signals and send them to the brain, which is understood as sound.

Are cochlear implants covered by insurance?

Unlike hearing aids, Cochlear hearing implants are covered by Medicare. They are also covered by many insurance plans and typically Medicaid.†

Additional facts about Cochlear's cochlear implant products:

- Cochlear's implants are the most reliable in the cochlear implant industry.¹²⁻¹⁵ Cochlear's implants are the most reliable today, over time and for children.¹²⁻¹⁶
- The Nucleus 7 Sound Processor is the world's first Made for iPhone cochlear implant sound processor and the smallest and lightest behind-the-ear cochlear implant sound processor available on the market.¹⁷⁻¹⁹
- With the Nucleus 7 Sound Processor, Cochlear Implant users can now stream sound directly from a compatible iPhone®, iPad® and iPod touch® directly to their sound processor with no intermediary device.^{20,21*} They can also control, monitor and customize their hearing on their iPhone or iPod touch through the Nucleus® Smart App.

† Covered for Medicare beneficiaries who meet CMS criteria for coverage. Coverage for adult Medicaid recipients varies according to state specific guidelines. Contact your insurance provider or hearing implant specialist to determine your eligibility for coverage.

Additional facts about Cochlear's cochlear implant products:

- As the first Smart App for cochlear implants, the Nucleus Smart App offers a range of features, including:
 - The Hearing Tracker feature, which records coil-offs time (each time the sound processor coil does not detect the implant coil, such as if it has fallen off a child's head) and time in speech (which measures the amount of time spent in speech environments in hours, including FM and streaming);²¹
 - The Find My Processor feature, which helps locate a lost sound processor by using Location Services to determine the last place the sound processor was connected to the paired iPhone or iPod touch, whether it has been lost on the playground, in the house or in the car.
- The Kanso Sound Processor is the smallest and lightest off-the-ear solution available in the industry.²²⁻²³
- Both the Nucleus 7 and the Kanso Sound Processors:
 - Are waterproof[†] with the Aqua+ accessory;
 - Feature dual microphones and SmartSound[®] iQ with SCAN^{**}, which allows the sound processor to automatically adjust to different listening environments, providing a seamless experience to the user; and
 - Are compatible with Cochlear's True Wireless[™] accessories, allowing users to stream conversation, phone calls, music and television programs directly to their sound processor.

Where do I learn more about cochlear implants?

Visit: www.Cochlear.com/US/CochlearImplants.

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 15. Comparing latest generation implant reliability among manufacturers. Cochlear[™] Nucleus Profile that has a Cumulative Survival Percentage (CSP) of 99.94% over 3 years compared to MED-EL SYNCHRONY implant that has a CSP of 98.96% over 2 years and HiRes 90k Advantage (by Advanced Bionics) has a CSP of 99.65% over 3 years. See reliability reports above. Data may be subject to updates by each manufacturer.
 16. Comparing latest generation implant reliability among manufacturers for children. Cochlear[™] Nucleus Profile that has a Cumulative Survival Percentage (CSP) of 99.96% over 3 years for children compared to HiRes 90k Advantage (by Advanced Bionics) that has a CSP of 99.30% over 3 years. MED-EL SYNCHRONY do not report implant reliability in children. See reliability reports above. Data may be subject to updates by each manufacturer.
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- * The Nucleus 7 Sound Processor is compatible with iPhone 8 Plus, iPhone 8, iPhone 7 Plus, iPhone 7, iPhone 6s Plus, iPhone 6s, iPhone 6 Plus, iPhone 6, iPhone SE, iPhone 5s, iPhone 5c, iPhone 5, iPad Pro (12.9-inch), iPad Pro (9.7-inch), iPad Air 2, iPad Air, iPad mini 4, iPad mini 3, iPad mini 2, iPad mini, iPad (4th generation) and iPod touch (6th generation) using iOS 10.0 or later.
- ** SNR-WR, WNR and SCAN are approved for use with any recipient ages 6 years and older, who is able to: 1) complete objective speech perception testing in quiet and in noise in order to determine and document performance; and 2) report a preference for different program settings.
- † The Kanso Sound Processor with the Kanso Aqua+ is water resistant to level IP68 of the International Standard IEC60529. This Kanso water protection only applies when used with LR44 alkaline or nickel metal hydride disposable batteries. The Nucleus 7 Sound Processor with Aqua+ is water resistant to level IP68 of the International Standard IEC60529. This Nucleus 7 water protection only applies when you use a Cochlear Standard Rechargeable Battery Module or Cochlear Compact Rechargeable Battery Module.



www.Cochlear.com/US

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