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How Does the Cochlear Implant Work with a Deaf or Hard of Hearing Child

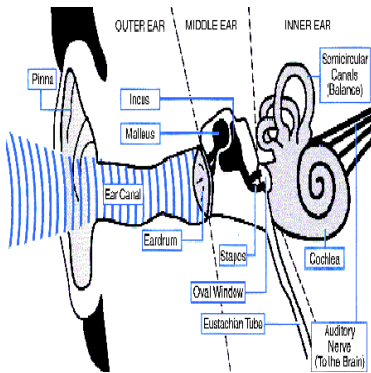
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Your baby has been diagnosed with a hearing loss. The doctor or audiologist has mentioned a cochlear implant but you are not sure what that is. In this article, we will take a look at what a cochlear implant is, how it works, surgery and recovery and links for more information.

What is a Cochlear Implant?

A cochlear implant consists of an internal receiver/electrode package that is surgically implanted behind the ear and into the cochlea, and an external speech processor worn on the ear like a hearing aid. A cochlear implant provides a means of hearing for children and adults who otherwise receive no or limited benefit from conventional hearing aids. The primary benefits of a cochlear implant are to aid in lip reading, preception of environment sounds, aid in monitoring the volume of one's own voice.

Cochlea: The part of the inner ear that is shaped like a snail shell. The cochlea contains thousands of tiny hair cells, which vibrate in response to sound. These vibrations are converted into electrical signals, which are carried to the brain by the auditory nerve to be interpreted and given meaning. Damage to these hair cells can be a cause of sensori-neural deafness.



How a Cochlear Implant Works: A cochlear implant is very different from a hearing aid. Hearing aids amplify sound. Cochlear implants compensate for damaged or non-working parts of the inner ear. When hearing is functioning normally, complicated parts of the inner ear convert sound waves in the air into electrical impulses. These impulses are then sent to the brain, where a hearing person recognizes them as sound. A cochlear implant works in a similar manner. It electronically finds useful sounds and then sends them to the brain. (Berke, J. 2009)

Who is a Candidate for a Cochlear Implant

The ideal can are children whose hearing loss is identified very early. Candidacy for cochlear implantation is determined by a team of specialists which includes an otologist (ear doctor), an audiologist. The otologist will obtain a complete history, perform a thorough

exam, and order appropriate testing. The audiologist will evaluate your hearing by performing an audiogram (hearing test) and will also determine the appropriateness of amplification use. Once the doctors determine that the child is a candidate, the parent will make the decision.

Some common reasons that a child may not be eligible for a cochlear implant:

- the child's hearing is "too good" (meaning the child can hear some sound and speech with hearing aids)
- the reason for hearing loss isn't a problem with the cochlea
- the child has experienced profound deafness for a long period of time
- the hearing nerve itself is damaged or absent

For those who do receive a cochlear implant, benefits can vary. The length of rehabilitation varies from person to person, and many factors (such as the condition of the hearing nerve or the presence of scar tissue in the cochlea) can hinder the success of the implant. Expectations should be realistic, and the doctor or surgeon will help you understand the level of success the implant can reasonably achieve for your child. (O'Reilly, R., 2010)



Surgery: The actual surgical procedure, which takes 2 to 4 hours and uses general anesthesia, involves securing the implant package under the skin and inside the skull, and then threading the wires containing the electrodes into the spirals of the cochlea.

To secure the implant, the surgeon first drills a 3- to 4-millimeter bed in the temporal bone (the skull bone that contains part of the ear canal, the middle ear, and the inner ear). Next the surgeon opens up the mastoid bone behind the ear to allow access to the middle ear. Then, a small hole is drilled in the cochlea and the wires containing the electrodes are inserted. The implant package is then secured and the incision is closed.

After having cochlear implant surgery, a child:

- Will probably be able to go home the next day
- Will have to wear a dressing over the implant area for 24 hours
- May be off-balance or dizzy for a few days
- May experience mild to moderate pain (the doctor may recommend giving pain medications)
- Won't have to have the stitches removed — they're absorbable and dissolve on their own
- Can lie on the side with the cochlear implant in a few days

Two to four weeks after surgery, the sound and speech processor is matched with the implant package and is programmed and fine-tuned to meet the child's individual hearing needs.

Learning to Listen: Because the extent and type of hair cell damage, electrical sign patterns, and sensitivity of the hearing nerve are different for each person, a specialist must fine-tune the sound and speech processor for every patient.

Additional information on cochlear implants can also be found through the Alexander Graham Bell Association for the Deaf and Hard of Hearing (www.agbell.org) Hearing Loss Association of America (www.hearingloss.org) National Institute on Deafness and Other Communication Disorders (www.nidcd.nih.gov)



References : Berke, J., 2009, *Cochlear Implant facts* About.com

<http://deafness.about.com/cs/cochlearimplants/a/cifacts.htm>

University of Maryland Medical Center, *Cochlear Implant Program*

<http://www.umm.edu/otolaryngology/cochlear.htm#noE#ixzz1wNMqS1ev>

O'Reilly, R. MD, 2010, KidsHealth, *Cochlear Implants*, <http://kidshealth.org/parent/general/eyes/cochlear.html#>



Ideas for Summer

Summer is upon us once again. Here are some ideas for keeping your deaf or hard of hearing child busy.

- Play day in the Park- contact your local Parent Links Mentor for day and time.
- Story time at Barnes and Nobel bookstore. Story time is often held on Saturday in both English and American Sign Language.
- Summer day camp held at House Ear Institute (<http://www.hei.org/education/camp/camp.htm>) John Tracy Clinic (<http://www.jtc.org/services/summer-sessions>)
- Deaf and Hard of Hearing Service Center (www.dhsc.org) has activities for meeting others in the deaf community.

Frugal Summer Activities for Kids

1. See a "one dollar" movie at the theater.
2. Sprinkler Day
3. Teach your child to fly a kite.
4. Bake a cake.
5. Build a fort in the living room.
6. Go bowling.
7. Have a water balloon fight: Lots of fun but be sure to pick up the balloon remains, especially if you have very little ones or pets as they could be a choking hazard.
8. Institute a Pajama Day: Stay in your pajamas all day long. Make pancakes in the morning, bake a pizza for lunch, and lounge around watching movies. Use your Netflix subscription to have a couple kid-friendly movies on hand.

Excerpt taken from Frugal Dad at <http://frugaldad.com/2009/05/25/fun-summer-activities-for-kids/>



When a parent finds out that their child is deaf or hard of hearing, they often do not know what to do next. Of course the professionals direct them toward the early start programs, preschools, speech therapy, medical intervention and all of that is very important. But a professional cannot share in the parents experience as another parent can. Meeting another mom who also has a child can be very exciting. Another parent could be able to answer the questions and relay their own personal experiences.

The benefits of meeting other parents include:

- mutual support through contact with other parents of a deaf or hard of hearing child with similar condition
- sharing information which helps in caring for their child
- building confidence
- offers an opportunity to help other parents of children who are deaf or hard of hearing

“Parents who frequently met with other parents of deaf and hard of hearing children reported less isolation, stronger emotional bonds with their child and greater acceptance for the child. Parents also emphasized the benefits of giving mutual practical help in coping with everyday challenges.”(Manfred Hintermair, 2000)

Offering support to parents is what Parent Links is all about. Each mentor is a parent of a deaf or hard of hearing child.

- Through email, phone and mail we are here to help answer the questions that parents may have about raising a child who is deaf or hard of hearing.
- Help parents find local connections.

“FIND A PLAY GROUP IN YOUR AREA” Just give us a call.

Parent Mentors

Exceptional Parents Unlimited

Darla Schwehr
Vicky Olea
4440 N. First Street
Fresno, CA 93726
559-229-2000 x 208

Counties

Alameda, Contra Costa
Fresno, Kings
Madera, Mariposa
Merced, Monterey
San Benito, San Francisco
San Joaquin, San Mateo
Santa Clara, Santa Cruz
Stanislaus, Tulare

Family Focus Resource & Empowerment Center

April Chauhan
Irma Sanchez
Cora Shahid
Kristal Molina
Edith Wysinger
18111 Nordhoff Street
Northridge, CA 91330
818-677-6854 Office
Counties
Imperial, Inyo
Kern, Los Angeles
Mono, Orange
Riverside, San Bernardino
San Diego, San Luis Obispo
Santa Barbara, Ventura

Rowell Family Empowerment Center

Kat Lowrance
Barb Ciukowski
962 Maraglia Street
Redding, CA 96002
530-226-5129

Counties:

Alpine, Amador, Butte, Calaveras
Colusa, Del Norte, El Dorado, Glenn,
Humboldt, Lake, Lassen, Marin,
Mendocino, Modoc, Napa, Nevada,
Placer, Plumas
Sacramento, Shasta, Sierra
Siskiyou, Solano, Sonoma
Sutter, Tehama, Trinity
Tuolumne, Yolo, Yuba