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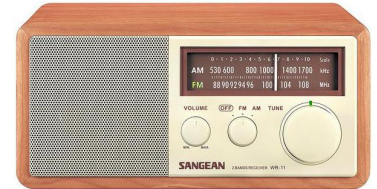
Cochlear Implants

What is a cochlear implant?

A cochlear implant is a device which is surgically implanted into the inner ear. A traditional hearing aid helps by increasing the volume of the sound coming into the ear, whereas a cochlear implant bypasses the ear structures and directly stimulates the hearing nerve. This can help improve hearing in ways that traditional hearing aids cannot.

What is the advantage of a cochlear implant compared to a traditional hearing aid?

You can think of hearing as having two knobs like in an old analog radio – the volume knob and the frequency knob. Traditional hearing aids can help turn up the volume, but if the frequency knob is off no matter how loud the volume is the words won't make sense. Only cochlear implants can help fix the "frequency." We can tell if your "frequency" knob is off by looking at your Word Recognition Score, which is a percentage value on your hearing test.



Is this an experimental device?

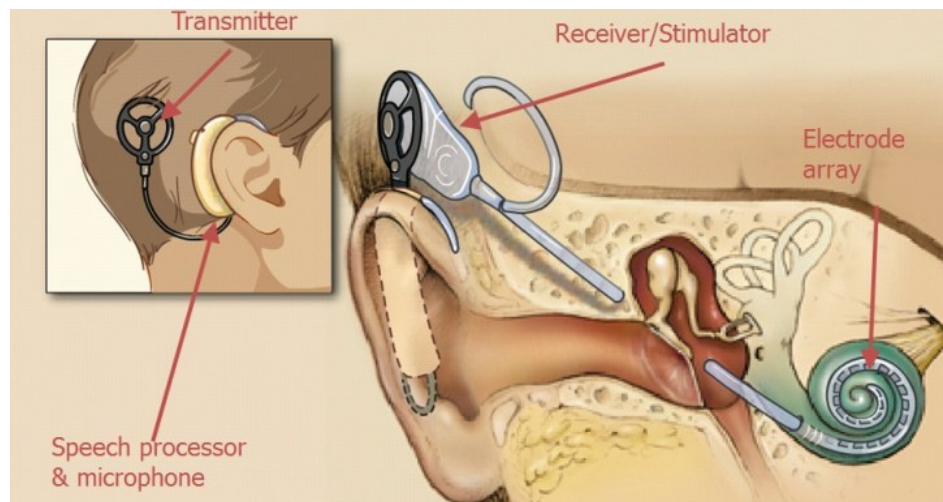
No. While cochlear implants are definitely innovative technology, the first cochlear implant was placed in 1978 and they are a well-established treatment for hearing loss which has been proven to be highly effective in properly chosen patients. Cochlear implants are a marvel of modern technology and are continuing to improve year to year.

This sounds expensive...

The device itself is indeed expensive (about \$28,000), however unlike most traditional hearing aids, it is covered by most health insurance plans. *The out of pocket cost to you is usually less than traditional hearing aids.* We will be able to give the cost to you before surgery is scheduled.

How does it work?

You will wear an external processor which receives and processes sound. This connects to an internal receiver/stimulator through the skin with a magnet. The receiver/stimulator has an electrode which goes into your inner ear and directly stimulates your hearing nerve. Your brain will learn how to understand those electrical impulses when you start using your cochlear implant. You will take the external processor on and off like a normal hearing aid and the internal receiver/stimulator will stay in permanently. You will still wear a hearing aid in your other ear if you need one.



Will this be like hearing?

When your device is first activated it will sound very different – some describe it as robotic, others tinny. Over time it will sound more natural. Some users develop an appreciation of music with their cochlear implant, others don't. That is very hard to

my normal

predict.

How well can I expect to hear with a cochlear implant?

This varies significantly person to person. At first your hearing might be worse – don't be discouraged! This is normal and with effort it will improve. After six months, most users understand about 80% of sentences with a cochlear implant – some are closer to 100%, some less than 80%. Almost all recipients have better hearing than they had before surgery after six months. It is important to know that *your hearing will still not be normal or perfect*, but for most people their implanted ear becomes their better ear. Of all the surgeries Dr. Bartindale does, this one has the most satisfied patients.

Adults with cochlear implants:

- Are 5x more satisfied with their ability to understand what is said on TV
- Are 7x more satisfied with their ability to understand sentences
- Are 11x more satisfied with their ability to hear on the phone
- Have consistent improvement in quality of life
- Have lowered risk of developing dementia compared to people with untreated profound hearing loss

What is the surgery like?

Surgery is surgery and should always be taken seriously. However, as surgeries go, this is a relatively minor one. It is about a one-hour surgery where you will be completely asleep (general anesthesia). Dr. Bartindale makes a ~1 inch incision and does not shave any of your hair. As long as you don't have any major health problems and everything goes well you will go home the same day. Your incision will be closed with absorbable stitches which do not need to be removed. You will wake up with a "Civil War" bandage on your head which you will remove the following day.

How is the recovery from surgery?

You will receive narcotic pain medication just in case, however most patients don't need it. Tylenol and ibuprofen are usually enough to manage pain behind your ear. Recovery means different things to different people, and everyone bounces back at different rates. In general, after a couple of days of recovery patients are back to their normal routine. You can shower the day after surgery – it is ok to get the incision wet, but do not scrub directly on it. It helps healing to apply plain Vaseline daily to the incision.

What are the risks of surgery?

Cochlear implant surgery is very safe overall, but as with any surgery there are risks.

- Anesthesia
- Bleeding
- Aborted surgery – If something unexpected is found during surgery making implantation impossible or dangerous, surgery may need to be aborted.
- Infection – In rare cases this can make removal of the implant necessary.
- Device failure – Uncommon, but this could require replacement of the implant in the future.
- Facial nerve injury – Rare.

Dr. Bartindale always tries to preserve your remaining natural hearing, but some hearing is always lost. It is frequently completely lost.

Can I get an MRI with a cochlear implant?

Yes. This is a recent innovation.

Am I too old for this?

The answer is always NO! If you are healthy enough to tolerate general anesthesia, there is no age too old to be a cochlear implant candidate. It is common to implant patients in their 90s.

Ok, I'm interested. What is the process?

- Cochlear implant evaluation – This is a hearing test where you wear your hearing aids to see how you do in real-life situations to determine if you are a good cochlear implant candidate.
- Insurance precertification – We will submit to your insurance to make sure everything will be covered.
- Device selection – You will choose the specific device and accessories you would like with your audiologist.
- Clearance – We will request clearance from your primary doctor to make sure you are healthy enough for surgery.
- Imaging – Sometimes Dr. Bartindale will need you to obtain a CT or MRI before surgery.

- Pneumovax – The CDC recommends all patients receive this vaccine before a cochlear implant due to a slightly increased risk of meningitis. This is two injections 8 weeks apart. You need to get the first injection before surgery.
- Surgery
- Activation – One week after surgery with your audiologist.
- Reprogramming – You will meet with your audiologist periodically to reprogram your cochlear implant. At first you will meet monthly and over time it will be less frequently.

Learning how to hear with a cochlear implant is not a passive process, it takes work. Users who are motivated and work at it will have better results. If a patient has a hip replacement, they need to do physical therapy to recover – along the same lines, to use your cochlear implant to its greatest potential, working to listen actively and use it frequently will help you hear again. With effort you will be rewarded. Users often don't realize how much they had been missing until they can hear again. Families often remark at how users are engaged in their conversations again for the first time in years.

I qualify for a cochlear implant. Should I do this?

Cochlear implants are not perfect but consider giving yourself a shot – most users are happy they did.