

Cochlear Implant Surgery *coming* to Montreal

What is a Cochlear implant?



A cochlear implant (CI) is a small electronic device that is surgically placed. It allows individuals with **severe to profound hearing loss** to hear sounds, and possibly understand speech. This procedure allows children who are born deaf access to sound and therefore greatly improves their ability to acquire oral speech and language. Many children who have been fitted with a CI at a young age (before 18 months), and received post-surgical rehabilitative services, have succeeded in mainstream classrooms. Adults who have lost most or all of their hearing with age or for other reasons can hear warning sounds in their environment, can often have phone conversations, and can also converse without visual cues such as lipreading and sign language. It takes time and training (rehabilitation) to relearn to hear through a CI, as it is different from “normal” hearing or hearing with a traditional hearing aid. But those who may have lost their hearing with time learn by associating the sounds they hear through a CI with those they remember, including speech.

Who is eligible to receive it?

Criteria include those individuals with severe or profound hearing loss who cannot benefit from or who benefit very little from hearing aids. Since this is a surgical procedure, a person must be healthy enough to undergo this surgery. Determining a person’s eligibility for a CI involves consultations with medical experts, audiologists and other professionals. Considerable post-surgical rehabilitation is required for maximizing the benefits of a CI. In Quebec, all persons interested in CI must register and be a client of a rehabilitation center such as the Lethbridge-Layton-Mackay Rehabilitation Centre. The rehabilitation centres provide intensive rehabilitation post implant. The surgery currently only takes place in Quebec City. Recently, however, the government of Quebec, has agreed to provide the implant surgery in Montreal as well. At present, this is in the planning stages, and a timeline for implementation has not yet been announced.

In Quebec, the costs associated with the implant are covered by Medicare.

For more information please consult the websites below -

<https://www.chha.ca/hearing-education/cochlear-implants/>

<https://canadianaudiology.ca/for-the-public/hearing-aids-and-implants/#who-is-a-candidate-for-a-cochlear-implant>

You are also welcome to visit us at Hear Québec at www.hearhear.org for more information

How does it work?

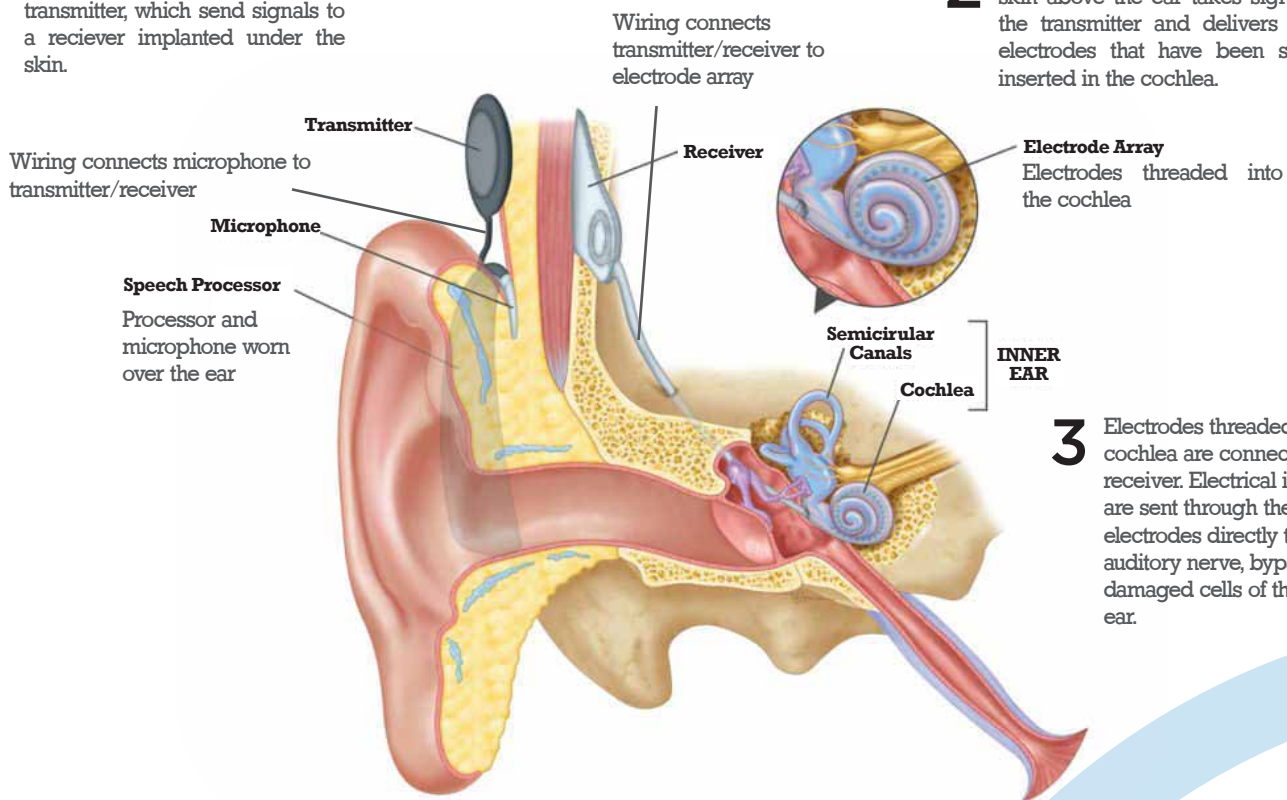
A cochlear implant is a complex device that provides a person with the sensation of sound. Simply put, the CI picks up sounds from the environment, and directly transmits them to the inner ear and auditory nerve, bypassing the damaged parts of the inner ear. Part of the CI is placed externally behind the ear like a hearing aid and the other part is implanted internally under the skin and in the inner ear.

The outer part of the CI consists of a microphone and speech processor that convert sounds from the environment into digital information. This information is passed on to a transmitter worn on the head. From there, sounds are transmitted to a receiver under the skin. The receiver converts the sounds into electrical impulses. The impulses are collected by an electrode array implanted in the inner ear. The electrodes conduct these impulses to nerve endings on the auditory nerve from where they stimulate the brain, and the individual can thus perceive sound.



1 First a speech processor with a microphone collects and digitizes sound. Then it sends sound to a transmitter, which send signals to a receiver implanted under the skin.

2 A receiver implanted just under the skin above the ear takes signals from the transmitter and delivers them to electrodes that have been surgically inserted in the cochlea.



3 Electrodes threaded into the cochlea are connected to the receiver. Electrical impulses are sent through the electrodes directly to the auditory nerve, bypassing the damaged cells of the inner ear.