Education Bureau
The Government of the Hong Kong Special Administrative Region
AS-11E

Cochlear Implants

What is a cochlear implant?

A cochlear implant is a high-tech electronic device implanted in the cochlea to help children with hearing impairment so severe that hearing aids cannot help much. It works by converting sounds into weak electric currents, which in turn stimulate the auditory nerve ends in the cochlea to generate nerve impulses. The impulses are then transmitted to the brain through the auditory nerves so that the implantee can recognize them as sounds and understand the messages encoded. Given proper training after cochlear implantation, children can improve their communication ability.

Will a cochlear implant restore normal hearing?

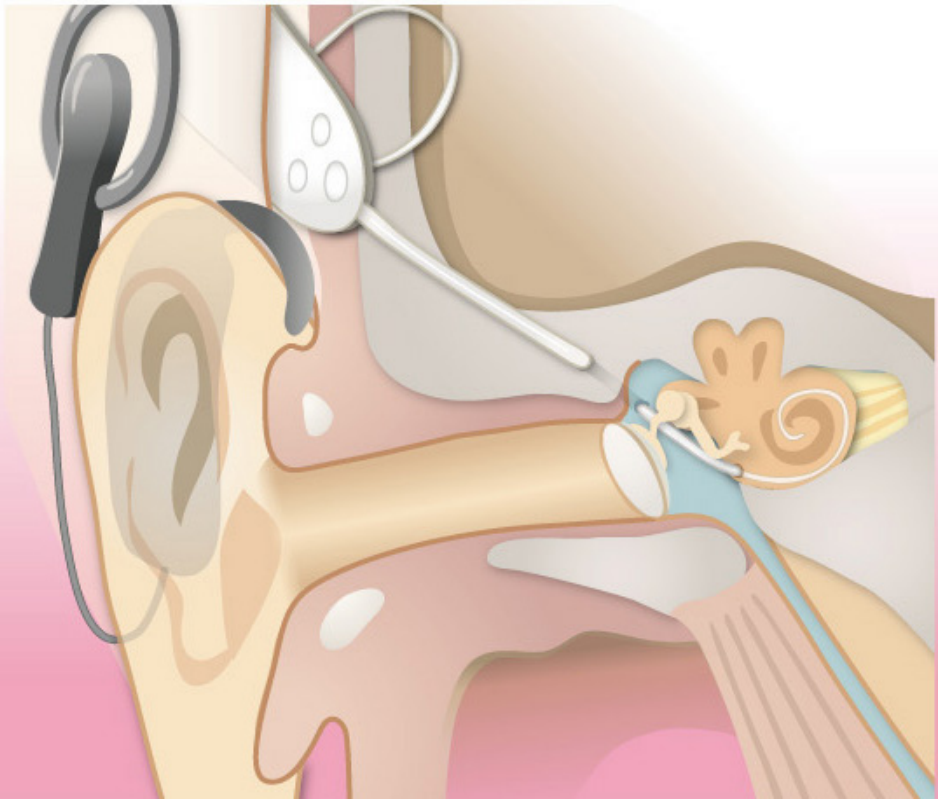
Not necessarily. The sounds received through a cochlear implant are like synthetic sounds, which differ slightly from natural ones. However, this unnatural feeling will fade over time, and most children will get used to it a few weeks after having the implant.

Cochlear implants enable the users to hear most of the noises in the environment and conversations at normal voice level. Given proper auditory and speech training, many users can improve their communication ability.

Who are suitable for cochlear implantation?

Whether a child is suitable to receive cochlear implantation is to be determined by professionals and specialists (including doctors, audiologists, speech therapists, psychologists and social workers) in consultation with his / her parents after a series of examinations and assessments. The pre-conditions for receiving this operation are as follows:

- The child has severe or profound sensorineural hearing impairment in both ears.
- The conditions of his / her cochlea and auditory nerves are suitable for surgery.
- Hearing aids are of little help.
- The child has support and encouragement from his / her family and friends,
- Positive expectations of the outcome of the surgery, and
- Is aware of the need for prolonged training after surgery to improve speech and communication abilities.



When to consider cochlear implantation?

When hearing aids are of little help to the hearing impaired children, cochlear implantation may be considered. As speech stimulation has great impact on the development of language ability, especially when a child is under 6, early exposure to sounds is most helpful to the child's academic and language development.

Is the surgery risky?

Current studies on the safety of cochlear implants show that there are few cases of induced complications or poor components. Nevertheless, parents should be fully aware and well informed of the potential risks of the surgery.

What to note after surgery?

Healing of the surgical wound usually takes 3 to 5 weeks, after which most cochlear implanted children can resume normal activities. However, they should watch out for blows during that period.

After the wound has healed, these children should return to hospital for fitting of external components. Audiologists will put in place, programme and adjust the device before speech training by speech therapists begins.

Support from family and friends is crucial to every child with a cochlear implant. Besides, teachers, healthcare workers, speech therapists, psychologists and audiologists should take part in the entire aural rehabilitation programme to help the child to integrate as early as possible into the hearing world socially and academically.

What else to watch out for?

- The cochlear implant system is powered by battery. The battery and also the wiring need to be replaced after using for some time.
- Keep the external components clean and dry, as in the case of hearing aids.
- Stay away from objects which will generate an excessive amount of static electricity, such as plastic slides.
- Some radio wave frequencies, such as those used by mobile phones, will interfere with the function of the implant. Students are advised to test the radio products before purchase.
- Humidity and blows can damage the external components. Students should therefore remove the components before physical education and swimming lessons.

- Although the implanted part has no direct contact with the outside world, students are cautioned against diving as drastic changes in deep-sea pressure may damage the device.

- Students can engage in extra-curricular activities as usual after surgery but should watch out for direct blows on the head.

- Many students report greatly improved reception of sound after surgery. However, this varies from one individual to another. Teachers should well manage their expectations to avoid putting too much pressure on the students.

- Students have to learn listening and articulation again after surgery. Initially frequent visits to hospital are required for adjustment of the implant as well as speech and auditory training. In general, their performance at the initial stage of training tends to be unsteady.

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