

# ***COCHLEAR IMPLANT REHABILITATION CLINIC***

102, Balaji Heights, 5-B Rajgarh Kothi, Geeta Bhavan Main Road  
Indore - 452001, Madhya Pradesh State, India  
Ph: (91) 731 2491873

---

## **Advantages of early cochlear implantation**

Your child may be able to benefit from a cochlear implant regardless of his or her age. However, for children who have become deaf before learning to speak, success is more likely if they are implanted at a young age. These children receive auditory information at a time when their brain is especially ready to learn language. In many cases, when children with a profound hearing impairment are implanted early enough, their hearing and speech can develop in a manner similar to that of their hearing peers. In these cases, spoken language appears to emerge almost naturally.<sup>2,3</sup>

For children who have had experience hearing and who have lost their hearing later, a similar rule applies: the shorter the time period of deafness, the more likely they are to benefit from a cochlear implant.

Today, children are being implanted at ages as young as their first year of life. Additionally, research has shown better results for children implanted at a very young age

## **Two Ears are Better than One**

### **Bilateral Cochlear Implantation**

Bilateral implantation is cochlear implantation in both ears. Hearing with two ears, also called binaural hearing, has distinct advantages such as improved speech understanding in noise, better speech recognition and sound localization. In general, it can be said that “stereo” hearing (with two ears) is less strenuous than “mono” hearing (with one ear). MED-EL pioneered bilateral cochlear implantation in 1996 and has since accumulated leading experience in this field.

### **Bilateral Implants in Children**

Implanted children are a unique group. Unlike adults who may have had hearing and then lost it, children usually learn to listen using only the sound from the cochlear implant. It is common knowledge that it is more difficult to learn certain things later in life – such as learning second languages – and it has long been understood that there is a “critical window” of time early in a child’s life when he or she has the best chance of making use of sound for the development of language. For example, studies have illustrated that children who received their bilateral implants prior to age 3½ were able to make the most of the brain’s ability to learn.<sup>2,3,4</sup>

In a retrospective study using a parent questionnaire<sup>5</sup>, hearing quality in children was found to be significantly better following bilateral implantation. Bilaterally implanted children respond much faster in group situations; they react more quickly and appropriately in everyday situations and acquire language spontaneously. Additionally, auditory effort is reduced and, according to parents, the children are less tired after school or

kindergarten. Parents of bilaterally implanted children often report clear benefits in speech understanding and an increase in their child's self-confidence.

### **Bilateral Implants in Adults**

The distinct advantages of bilateral implantation have also been well documented in adults. Several studies have reported restored ability to localize sounds<sup>6,7,8,9</sup> and that adult bilateral users have demonstrated all of the binaural effects that normal individuals enjoy.<sup>10,11,12,13</sup> Furthermore, the age of implantation in adults appears to have no bearing on the performance of the cochlear implant<sup>4</sup> meaning that older adults can also obtain the same benefits as younger implanted adults.

---

## **Conditions Limiting Cochlear Implant Success**

Cochlear implant systems have been used successfully by thousands of people worldwide, but there are situations when a cochlear implant system may not be appropriate. Some factors include:

### **Hearing Is “Too Good”**

If hearing aids provide good speech understanding, they may be a better option.

### **Profound Hearing Loss for a Very Long Time**

If an adult was born with a profound hearing loss or has been deaf for many years, the auditory nerve may not effectively carry sound information to the brain. Optimal benefit of a cochlear implant may not be possible, although consistent use of residual hearing with hearing aids may help offset the length of deafness.

### **Neural Hearing Loss**

If the site of hearing loss is the auditory nerve or brain, a cochlear implant cannot help.

### **Cochlear Malformations**

If the cochlea is absent or not fully formed, it may not be possible to surgically place a cochlear implant.

### **Medical Problems**

If an individual is not healthy enough to tolerate anesthesia and surgery or participate in the follow-up programs, a cochlear implant may not be advisable.

### **Inappropriate Expectations**

If individuals and families have unrealistic expectations, results may be disappointing.

## Lack of Support from Family or Caregivers

---

If support from family and caregivers is not available, success with a cochlear implant system may be compromised