

## Cortical responses and age at cochlear implant.

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Cortical auditory potentials may be considered today as a valuable clinical tool in assessing electro-physiological responses of the central auditory pathways after electrical stimulation through cochlear implants.

Our experience with cortical responses, as well as other groups' before, shows that the main peak latencies change during time in a way that mimicks normal hearing. In particular these experiences confirmed that, although after a starting delay, cochlear implant recipients can reach the same temporal index of hearing people. Such indexes of cortical responses are not correlated with speech understanding because we know that pre-lingual deaf patients don't reach good performances if implanted at adult age, even with near- normal cortical potentials.

In any case there is a clear evidence that early implantation produces a normal maturation of cortical potentials and this is strictly correlated with the restoration of a hearing that allows to understand speech. This is probably because the electrophysiological maturation facilitates future language comprehension if reached at a young age.

The question is: how early are we supposed to do the surgery?

Our experience with a group of 397 subjects one year after implantation shows that patients that were implanted under 14 months have shorter latencies if compared with children that were implanted between 15 and 23 months, and the values are similar to those of hearing people. Two years after implantation, instead, data referring to 291 patients demonstrate that the cortical responses have similar latencies for children implanted both between 0-14 months and 15-23.