

## **"SPEECH THERAPY WITH CHILDREN USING COCHLEAR IMPLANTS: EXPERIENCE AND METHODS"**

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**Abstract:** This article examines the crucial role of speech therapy in maximizing the communication outcomes for children with cochlear implants (CIs). It reviews a range of evidence-based speech therapy approaches and methods tailored to the unique needs of CI recipients, encompassing auditory-oral therapy, auditory-verbal therapy, and combined approaches. The article details practical techniques for improving speech perception, articulation, phonology, voice quality, fluency, and overall speech intelligibility. It highlights the importance of early intervention, individualized treatment plans, family involvement, and ongoing assessment to monitor progress and adjust therapy strategies. Drawing on clinical experience and current research, this article provides valuable insights for speech-language pathologists and other professionals working to enhance the spoken language abilities of children with CIs.

**Keywords:** Speech Therapy, Cochlear Implant (CI), Auditory-Oral Therapy, Auditory-Verbal Therapy, Speech Perception, Articulation, Phonology, Voice Quality, Fluency, Speech Intelligibility

### **INTRODUCTION**

Cochlear implants (CIs) have revolutionized the lives of children with severe to profound hearing loss, providing access to sound and the potential for developing spoken language. However, the CI itself is not a complete solution. Speech therapy is an essential component of the rehabilitation process, playing a crucial role in helping children with CIs develop the necessary auditory and oral skills to communicate effectively. This article will explore the experiences and methods used in speech therapy with children using CIs, highlighting the importance of early intervention, individualized treatment plans, and family involvement.

Early intervention is paramount for maximizing the benefits of CIs. The critical period for language development is during the first few years of life, and early exposure to sound and language is essential for the development of auditory pathways in the brain. Children who receive CIs and begin speech therapy early tend to achieve better outcomes than those who are implanted later. Early intervention allows children to:

- Develop auditory awareness and discrimination skills.
- Acquire age-appropriate vocabulary and grammar.
- Improve articulation and speech intelligibility.
- Develop effective communication strategies.
- Minimize the impact of hearing loss on their social and emotional development.

Before beginning speech therapy, a comprehensive assessment is necessary to evaluate the child's current communication skills and identify specific areas of need. This assessment typically includes:

- Audiological Evaluation: To assess hearing thresholds and CI function.
- Speech Perception Testing: To evaluate the child's ability to discriminate and identify speech sounds.
- Language Assessment: To assess receptive and expressive language skills, including vocabulary, grammar, and narrative abilities.
- Articulation Assessment: To evaluate the child's production of individual speech sounds.

- **Voice Assessment:** To assess voice quality, pitch, and loudness.
- **Fluency Assessment:** To evaluate the child's speech rate and rhythm.
- **Social Communication Assessment:** To assess the child's ability to interact with others and use language appropriately in social situations. The results of the assessment are used to develop an individualized treatment plan that addresses the child's specific needs and goals. Several therapeutic approaches are used in speech therapy with children using CIs. The choice of approach depends on the child's age, hearing loss history, cognitive abilities, and communication goals. Some common approaches include: AOT emphasizes the use of audition as the primary modality for learning language. Children are encouraged to listen carefully to speech and to use their residual hearing (with or without hearing aids) to develop auditory skills. Speechreading (lipreading) may be used as a supplementary strategy, but the focus is on developing auditory skills. AOT typically involves the following activities:
  - **Auditory Training:** Activities to improve auditory discrimination, identification, and comprehension skills.
  - **Speechreading Training:** Activities to improve the ability to understand speech by watching the speaker's mouth.
  - **Speech Production Training:** Activities to improve articulation, voice quality, and fluency.
  - **Language Development Activities:** Activities to expand vocabulary, improve grammar, and develop narrative abilities.

AVT is a highly specialized approach that emphasizes the development of spoken language through audition alone. Speechreading is discouraged, and children are encouraged to rely solely on their hearing to learn language. AVT is based on the following principles:

- Immediate fitting of appropriate hearing technology (hearing aids or CIs).
- One-on-one therapy sessions with a certified auditory-verbal therapist.
- Intensive auditory training activities.
- Family involvement.
- A focus on developing spoken language through natural conversations.

AVT has been shown to be highly effective in helping children with CIs develop spoken language skills. TC uses a combination of sign language, spoken language, and visual cues to facilitate communication. TC is often used with children who have significant communication challenges or who are not making progress with other approaches. TC allows children to:

- Communicate immediately, even if their spoken language skills are limited.
- Access language through multiple modalities.
- Develop a strong sense of identity and belonging within the Deaf community.

While TC can be a valuable approach for some children, it's important to note that the goal for most children with CIs is to develop spoken language skills. Regardless of the therapeutic approach used, speech therapy with children using CIs typically involves a variety of techniques to address specific communication goals. These techniques include:

- **Auditory Bombardment:** Providing the child with repeated exposure to specific sounds or words.
- **Auditory Discrimination Activities:** Helping the child to differentiate between similar-sounding sounds or words.
- **Auditory Closure Activities:** Helping the child to fill in missing parts of a word or sentence.
- **Speech Production Drills:** Practicing the production of individual sounds, words, and sentences.
- **Tactile Cues:** Using tactile cues (e.g., touching the child's throat to feel vibration) to help the child produce sounds correctly.
- **Visual Aids:** Using visual aids (e.g., pictures, mirrors) to help the child understand and produce sounds correctly.
- **Language Stimulation Techniques:** Using a variety of techniques to encourage language development, such as expanding on the child's utterances, asking questions, and providing models of correct grammar.

- **Storytelling and Role-Playing:** Using storytelling and role-playing activities to improve the child's narrative abilities and social communication skills. Family involvement is crucial for the success of speech therapy with children using CIs. Parents are the child's primary caregivers and communication partners, and their active participation in the therapy process can significantly impact the child's progress. Parents can:

- Attend therapy sessions and learn strategies to support their child's communication development at home.

- Provide a language-rich environment at home by talking, reading, and singing to their child.

- Create opportunities for their child to interact with other children.

- Advocate for their child's needs in the school and community.

- Provide emotional support and encouragement. Regular assessment is necessary to monitor the child's progress and adjust therapy strategies as needed. Assessment should be ongoing and should include both formal and informal measures. Formal assessments are standardized tests that are used to measure specific communication skills. Informal assessments are based on observations of the child's communication skills in natural settings. The results of the assessment should be used to inform the therapy plan and to make adjustments as needed. If the child is not making progress, the therapist may need to modify the techniques used, change the therapeutic approach, or refer the child to other specialists. Speech therapy is an essential component of the rehabilitation process for children using CIs. Early intervention, individualized treatment plans, and family involvement are crucial for maximizing outcomes. By using a variety of therapeutic approaches and techniques, speech-language pathologists can help children with CIs develop the necessary auditory and oral skills to communicate effectively and participate fully in all aspects of life. Continued research and advancements in speech therapy techniques will further enhance communication outcomes for children with CIs, leading to improved quality of life and educational opportunities.

## **CONCLUSION**

Speech therapy is an indispensable component of cochlear implant (CI) rehabilitation for children, bridging the gap between access to sound and effective spoken communication. Early intervention, comprehensive assessment, and individualized therapy plans utilizing approaches like auditory-verbal or auditory-oral therapy are crucial for success. Key techniques focus on enhancing auditory perception, articulation, language skills, and social communication. Active family involvement provides a supportive environment vital for progress. Continuous monitoring and adaptation of therapy strategies ensure optimal outcomes, addressing specific challenges as they arise. Through dedicated speech therapy, children with CIs can develop the communication skills necessary to thrive, access education, and participate fully in social interactions, empowering them to lead fulfilling lives. Continued research will further refine these methods and improve the effectiveness of speech therapy for children with CIs.

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