Intervention Approaches for Children with Cochlear Implants and Speech-Language Delays

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BACKGROUND

Current research suggests that a large percentage of Speech-Language Pathologists (SLPs) in North Carolina do not feel adequately prepared to work with cochlear implant (CI) technology or provide services to children with CIs. (Compton, Tucker, & Flynn, 2009) Two important applications for intervention from current research include embedding synthetic auditory training goals into games and emphasizing the integration of language, listening, and speech in less structured activities to promote generalization of skills. (Ertmer, Leonard, & Pachuilo, 2002)

In clinical practice, many clinicians emphasize listening with children with CIs in order to teach them to rely on auditory input only. Observing practicing SLPs with this population yielded data to suggest that best practice lies in combining a focus on listening and auditory training with everyday, less structured activities.

This project explores techniques implemented with cochlear implant users by examining the literature and observing experts working with this population. This project questioned whether one could use some of the researched and observed intervention with children with CIs as well as children with speech-language delays participating in a UNCG Preschool Language-Literacy intensive two-week summer enrichment camp.

INTERVENTION APPROACHES RECOMMENDED IN THE LITERATURE

Throughout the literature, several studies provide SLPs with a roadmap for how to structure intervention sessions for children with cochlear implants and suggest specific target areas for these sessions. Some of these areas include:

- Auditory Perception Training
- Analytic training
- Synthetic training
- Minimal pairs technique

Speech Production

- Expressive and Receptive Language Integration of these skills

Auditory Verbal Therapy is a specific approach that is often used when working with deaf or hard of hearing children. It requires special certification to implement. Some principles useful for this project are listed below.

- Present auditory stimulus as the main sensory input
- Adopt a family-centered approach
- Teach language and speech through listening

INTERVENTION APPROACHES USED AT CAMP

Intervention approaches were selected based upon the 3 components of evidence-based practice.

**Analytic Training:** discrete trials used in individual therapy for a child with bilateral cochlear implants based on the Auditory Learning Guide. Acoustic highlighting and the Hand Cue were used during the activities below.

- Barrier games
- Answering WH-questions
- New vocabulary through books and story creation

**Synthetic Training:** activities that emphasize meaningful, connected speech and improve auditory-only comprehension of this content.

- Phonological awareness activities
- Camps songs with motions
- Storybook comprehension

The camp incorporated a family-centered approach with a parent seminar about auditory techniques.

- **Acoustic Highlighting:** Techniques that can be used to make speech easier to hear, including varying your pitch to emphasize the critical elements of your utterance (i.e. parts of a message that contain the critical information for understanding the speaker’s message).
- **Hand Cue:** Covering the speaker’s mouth (by hands, a toy, book, picture, etc.) during speaking when the child is looking directly at the speaker’s face. When the child is playing and not “looking” at your mouth, it is not necessary. The hand cue signals the child to listen intently and teaches the child to rely on listening alone. The hand cue should be faded once the child consistently relies on listening.

INTERVENTION APPROACHES USED BY SLPs WORKING WITH THE COCHLEAR IMPLANT POPULATION

- Acoustic highlighting
- Hand Cue
- Family-centered approach
- Listening comprehension activities
- Auditory Verbal Therapy
- Speech babble
- Analytic auditory training

IMPRESSIONS

Synthetic training activities were particularly beneficial during camp for children with cochlear implants and speech-language delays. Integrating acoustic highlighting into listening comprehension and phonological awareness activities was successful in drawing exaggerated attention to the critical elements of camp treatment goals.

Positive feedback by all caregivers during the parent training seminar indicated that auditory techniques could be useful for children with speech-language delays.

IMPLICATIONS FOR THE FUTURE

**Clinical Practice**

Acoustic highlighting is an effective intervention approach for children with cochlear implants. Structured, synthetic training therapy activities can help meet comprehension goals. More research is needed on the effectiveness of using auditory approaches with children with speech-language delays.

**UNCG Language-Literacy Camp**

Listening activities should be implemented in future UNCG camps for children with cochlear implants and speech-language delays. Per parent feedback, increased parent training sessions to explain auditory techniques would be beneficial throughout the duration of camp.

REFERENCES


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