At what ages will children actively participate in CASP?

The parent listens to the EI’s model, imitates it, and receives a reinforcer (i.e., star from Classical Stacker toy).

The child’s imitative attempts are rewarded with a star from the stacker toy and music plays as the child puts the star on the stacker.

Repeat steps 1-4 with remaining stimulus items.

A video demonstration of CASP is available at http://www Spokane.gov/DS/Default.aspx>

Reasons for developing the CASP

The widespread adoption of Newborn Hearing Screening (NHS) has made it possible to identify infants who have moderate to profound hearing loss within the first month of life.

As increasing numbers of infants and toddlers receive hearing aids and cochlear implants, there is a pressing need for objective ways to monitor auditory-guided speech development at the prelinguistic level.

Vocal development is the process by which infants and toddlers produce increasingly more complex, phonetically diverse, and speech-like utterances before they say words on a regular basis (Erter, 2005, p.85). The CASP is a time-efficient way to monitor the effects of sensory aid use on prelinguistic vocal development in young children with hearing loss.

Rationale for the CASP

Three premises

- Increased auditory access to conversational speech models and auditory feedback through sensory aids will lead to noticeable advancements in vocal development (e.g., McCaffrey, et al., 1999).

- Sensory aid benefit is demonstrated when children imitate progressively more complex, phonetically varied, and speech-like vocalization (Erter, et al., 2007).

- Toddlers can be conditioned to imitate developmentally appropriate speech (Kuhl, & Meltzoff, 1996), especially if modeled by a familiar person during a game-like activity.

Administration and Scoring

1. The parent and a familiar EI serve as role models for imitation. The EI models each stimulus item to the parent as the child observes.

2. The parent listens to the EI’s model, imitates it, and receives a reinforcer (i.e., star from Classical Stacker toy).

3. The parent turns to the child and models the same item for the child to imitate.

4. The child’s imitative attempts are rewarded with a star from the stacker toy and music plays as the child puts the star on the stacker.

5. Repeat steps 1-4 with remaining stimulus items.

*CASP Stimulation

(Adapted from The Stark Assessment of Early Vocal Development-Revised [SAEVD-R], Nathani, et al., 2006)

Level Items
Precanonical vocalizations (SAEVD-R levels 1-3) [a] [i] [aeo]
Basic Canonical Syllables (SAEVD-R level 4) [be] [me] [we] [ka] [so] [ta]
Advanced Forms (SAEVD-R level 5) [na] [tak]

• Scoring

- Each child imitation is scored for acceptability on a graduated scale of 0, 1, or 2 points.

- Scoring

<table>
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<tr>
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<td>Approximation</td>
<td>Contains some phonetic aspects of the target</td>
</tr>
<tr>
<td>0</td>
<td>Unacceptable</td>
<td>Failure to imitate or dissimilar from the target</td>
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Field Testing

Research Questions

(1) At what ages will children actively participate in CASP?

(2) Do CASP scores increase with age, sensory aid experience, and aided hearing levels?

Subject Groups

(1) 11 children with bilateral hearing loss (12-47 months)

- Severe to profound HL
- 7 used hearing aids and 6 used cochlear implants
- 15 typically developing children (12-47 months)
- Passed hearing screening
- No physical or learning disabilities

Methods

(1) Administering CASP twice to children with hearing loss with 10 months between testing sessions

(2) Administering CASP once to typically developing children.

Results

Children with hearing loss

Q 1: The youngest participant was 12 months old.

Q 2: Scores correlated with chronological age (r=0.73; p<0.01)

- Scores correlated with amount of sensory aid experience (r=0.62; p<0.01)

- Second CASP scores were significantly higher than those obtained 10 months earlier. (mean difference = 11 points; Wilcoxon Signed Ranks Test; p<0.01)

- Hearing level was not significantly correlated with scores

Figure 6. The test scores of children with HL

Discussion

- Children with HL who are as young as 12 months of age participated in the CASP
- CASP scores increased with age in both the HL and TD groups
- CASP scores increased with sensory aid experience
- CASP scores should be used to track progress for the same child


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References