Development of Communication Skills in Children and Adolescents with Down Syndrome

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INFANCY

PROBLEMS:

Delayed development of:

- cognition
- sensory-motor
- Babbling

Fewer nonverbal requests than mental age controls

Slowed acquisition of spoken vocabulary relative to comprehension

Higher incidence of hearing problems

Infancy.....

STRENGTHS -

- Interest in face-to-face social interaction
- Gestural communication
- Visual memory

Childhood

PROBLEMS:

Deficits in:

- auditory short-term memory compared to mental age
- communication skills relative to activities of daily living and socialization
- emergence of spoken sentences compared to mental age

More omission of:

- grammatical function words compared to language production level
- verbs compared to language production level

Chapman and Hesketh (2001)
Childhood.....

(PROBLEMS continued)

- Errors of sound production more variable
- Intelligibility problems

STRENGTHS:

- Comprehension keeps up with nonverbal cognition
  Chapman and Hesketh (2001)
ADOLESCENCE

PROBLEMS:

• Deficits in working memory: auditory and visual short-term stores
• Expressive language delay compared to mental age and comprehension levels continues
• Syntax comprehension delay emerges, compared to mental age and vocabulary comprehension
• Sentence structure more delayed than vocabulary in both comprehension and production

Chapman and Hesketh (2001)
Adolescence......

• STRENGTHS:
  • Comprehension vocabulary can exceed nonverbal cognition
  • Language learning continues throughout late adolescence and young adulthood in both comprehension and production
  • Almost half of individuals studied acquire literacy
  • Intelligibility improves with chronological age and continued therapy work

Chapman and Hesketh (2001)
Implications for Intervention

Chapman (2000, 2001) and Kumin (1998) recommend:

- Multiple targets for early intervention
  - object play and exploration schemes
  - requesting
  - babbling/speech motor skills
  - intelligible communication
  - affective comprehension
  - Hearing!
Implications

• Need to target both comprehension and production, at different levels

• Repeated mention of novel word in play improves speed of its comprehension

• Shifting intervention targets with development

• Need for language intervention in adolescence, including literacy
Implications

- Need to provide hearing support for intelligibility and grammatical morpheme comprehension

- Helpfulness of picture support for narrative content & MLU

- Helpfulness of narrative practice for MLU
<table>
<thead>
<tr>
<th></th>
<th>Typically Developing</th>
<th>Down Syndrome</th>
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<tbody>
<tr>
<td>Average Onset</td>
<td>12-14 months</td>
<td>21 months</td>
</tr>
<tr>
<td>First 10 words</td>
<td>15 months</td>
<td>27 months</td>
</tr>
<tr>
<td>Uses 18 words</td>
<td>18 months</td>
<td>36 months</td>
</tr>
<tr>
<td>24 months Vocabulary</td>
<td>250 words</td>
<td>28 words</td>
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Augmentative and Alternative Communication (AAC) Strategies

- Use of sign language
- Use of photographs
- Use of symbols
- Use of voice output
AAC Uses

- To decrease frustration
- To communicate basic wants and needs
- To provide a foundation for language development
- To provide support for increasing utterance length
- To provide a visual
- To allow them to initiate
MOTIVATION

- Work within activities that are motivating
- Provide exposure to speech, sign language, pictures to see what they are motivated to use
- Build into daily routines with motivating outcomes
- Make it fun!
Vocabulary Selection

• Initial Vocabulary
  • Motivating
  • Frequently used
  • Concrete/representative nouns and verbs

• “Please”, “Thank you”, “more” “I want” issues
Vocabulary Selection

- Observe what other kids say
- Observe what the child does during the day
- Build vocabulary around daily routines and favorite activities
- After 50 “words” child should start combining to make phrases
Speech

- Speech is *overlaid* on established non-verbal communication skills.

- Initial communication development is based on the learning of gestures and skills of turn taking, joint attention and exploration in play.

- Babbling sets up the ability to gain volitional control of voicing and motor plan for the variety of vowels and sounds needed for word production.
Factors impacting speech production and intelligibility

- Cognition – Delays in early communication skills, decreased receptive/expansive vocabulary and understanding of how to request & initiate interaction.
- Hearing
- Neuro-motor status impacts sounds, rate & pitch
  - decreased oral and pharyngeal tone
  - larger tongue limiting or impeding movements for sound production
- Dysarthria
Speech Disorders: Phonological Processes

- Final consonant deletion
- Stopping fricatives & affricates
- Consonant cluster reduction
- Final consonant devoicing
Speech Disorders:

Prosody
- Atypical
- May be more intelligible when add rhythmic pacing

Fluency
- May occur in 50% of people with DS

Voice
- Rough voice quality
- Nasality may be present/variable
Supporting Development of Speech

- Expand on use of gestures to include requesting/pointing not only labeling
- Provide visual cues – tactile oral
- Make use of pictures/symbols to support learning concepts and to cue on how to use as communication
- Signs to cue communication
- Set up repetitive practice on words to learn motor plan
- Make it meaningful – base targets on what child uses and expand on that