

DEPARTMENT OF COMMUNICATIVE DISORDERS University of Wisconsin-Madison

ABSTRACT

Reduced intelligibility frequently occurs in people with Down syndrome and yet few efforts have focused on intervention targeting this problem. A multiple baseline single-subject design was used to evaluate the effectiveness of a treatment approach to improve intelligibility in a woman with Down syndrome. Treatment focused on increasing intonation of functional phrases using visual feedback. The positive outcomes for this participant's intelligibility should encourage continued exploration of this treatment.

RATIONALE

Many people with Down syndrome demonstrate speech characteristics often associated with apraxia of speech Specifically, differences in prosody and sequenced movements are described in both groups. Success using Melodic Intonation Therapy (MIT) or people with apraxia suggested its potential effectiveness for persons with Down syndrome. This study investigated the efficacy of MIT to improve the speech intelligibility of a woman with Down syndrome.

PARTICIPANT DESCRIPTION

The participant was 26 years old and had Down syndrome. She sought treatment at the University of Wisconsin Speech And Hearing Clinic (UWSHC) because her speech intelligibility problems were interfering with her work situation.

Cognitive and Communication Measures

Stanford-Binet Intelligence Scale: Fourth Edition

Test of Auditory Comprehension of Language-Revised

Photo Articulation Test

Assessment of Intelligibility of Dysarthric Speech

Language sample

Hearing **Vocal characteristics**

Dynamic Assessment

IMPROVING THE INTELLIGIBILITY OF A WOMAN WITH DOWN SYNDROME

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METHODOLOGY

For this multiple baseline single subject design t was repeatedly measured over the treatment ses Intelligibility of Dysarthric Speech and imitation status (probes).

Treatment

Selection of Functional Phrases

- Controlled for length of utterance and phonological Ranged in length from 2 to 5 syllables
- Phrases of comparable complexity were assigned

Presentation of Functional Phrases

- •Live voice model used predetermined intonated Intoned patterns from MIT had distinct melodic
- Intoned speech was slower and more lyrical that

Treatment Sessions

- Twenty individual 50 minute sessions 2X per we
- •Swift & Rosin were the clinicians
- Correct phrases had a 20 Hertz difference between
- An 80% mastery criteria was required to advance •A hierarchy was established:
- •imitated production with visual feedback imitated production without visual feedback non-imitated production without visual feedba
- Visipitch was used for visual feedback

Listening Tasks

 Treated phrases selected for the listening task correctly 80% of the time with no imitation or vis 50 treated phrases and 50 probes were random •Transcription

- Direct Magnitude Estimation
- 18 speech-language pathologists were recruited
- •Listeners completed both listening tasks
- Listeners were randomly assigned to which ta

Results
Vocabulary: 5;6
Pattern Analysis: 7;3
Bead Memory: 4;6
Word Classes and Relations: 6;4 – 9;4 months
Grammatical Morphemes: 3;6-3;9
Elaborated Sentences: 3;6-3;9
Total Score: 4;4-4;7
Primary errors: vowels, afficatives, fricatives
Percent Correct: 39%
12 minute sample insufficient production and decreased
intelligibility made SALT analysis impossible
Normal
Voice was judged to be monotone, with decreased intensity, low
pitch. She had a paucity of oral movements.
Modification of MIT was necessary: Tapping interfered with
speech production and visual feedback was necessary

	RESULTS
the dependent variable (intelligibility) ssions using the <i>Assessment of</i> of the phrases assigned to untreated	The transcription and DME tasks showed significant positive changes for the treated versus the untreated phrases.
Jical complexity	3500 3000 2500 2000
ed randomly to target or probe status	i i
l patterns line, rhythm, and points of stress an typical speech	
	Paired t test at < 001
eek	
veen any two syllables in the phrase. Ice through the hierarchy	
ack	Period Based
s were only those that were produced sual feedback ly selected for two listening tasks:	# 400 200
ed as listeners	DME
ask they completed first	^paired t- test <.005
CONCLUSIONS	
The results indicate that the intelligibility. The treatment detection to the treatment of technique is useful as a comp	use of intoned speech with visual feedback improved spe- lid not generalize to untreated phrases indicating that this pensatory strategy at times of communication breakdown
DEEEDENICES	

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