

1. Introduction

Description

The Apraxia of Speech Stimulus Library is a treatment program with a variety of approaches for patients with verbal apraxia or apraxia of speech. It has been designed to maximize patient progress, minimize clinician preparation time, and provide data collection forms that satisfy the most stringent of Medicare guidelines. Most important, this program provides extensive stimuli as well as an organized, practical approach to treatment based upon proven therapeutic methodologies.

The rehabilitation program consists of a full spectrum of tasks and goals for adult patients, with a hierarchy of phonetic characteristics, lengths, and complexities of utterances that address individual skill levels. Target movements, words, phrases, sentences, and pictures, plus detailed, reproducible data collection forms are provided.

The suggested entry levels and methods of determining appropriate stimulus length for the initiation of treatment are based upon the clinician's prior diagnostic test results. A diversity of well-established therapeutic methodologies for the treatment of apraxia of speech is described, and the criteria for goal completion and advancement are provided. Suggestions for

carryover are also included. The vocabulary lists provided in the basic program have been directed toward adult activities of daily living (ADL) for health-care settings or home environments. Pictorial stimuli to supplement much of the ADL vocabulary stimuli are available separately in Box 2. Individualized, high-interest vocabulary stimuli are included in Boxes 3 and 4. Suggestions for further stimuli individualization are provided.

Rationale and Purpose

The goal of treatment for the adult with apraxia of speech is to regain voluntary, accurate control in programming the position of the articulators in producing phonemes and phoneme sequences (Darley et al. 1975). Therapy approaches generally involve facilitation of correct articulatory postures, speech sound sequencing (Dabul and Bollier 1976), and provision of conditions that enable the patient to advance from limited automatic-reactive speech to appropriate volitional-purposive communication (Rosenbek et al. 1973, 463).

The Apraxia of Speech Stimulus Library is based on the concept of a task continuum and the integral stimulation method of treatment, as developed by Rosenbek et al. (1973), which has been shown to aid in the restoration of communicative abilities in adults with severe apraxia. In this library, the 8-step task continuum proposed by Rosenbek has been expanded to 11 steps, incorporating pictorial stimuli for adults with reading difficulties.

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Deal and Florance (1978), using a similar task continuum approach, demonstrated restoration of communication abilities in patients with severe apraxia of speech. One patient in this study progressed to the point of using complete sentences in a meaningful manner. In particular, the use of a carrier phrase (such as "I want _____") was shown to broaden communication effectiveness because of its functional nature. Numerous carrier phrases are included in this program. Deal and Florance further demonstrated successful establishment of home-based programs. To this end, *The Apraxia of Speech Stimulus Library* has been designed with practical and helpful guidelines for developing home-based carryover training programs.

In addition to the task continuum-integral stimulation approach, this program describes a variety of additional treatment methodologies. Techniques which might require *nonspeech movements* for addressing the problems of patients with severe apraxia of speech are discussed. *Phonetic placement* and *phonetic derivation* approaches are described for the establishment of more accurate sound, syllable, and word productions. The use of *key word* approaches and *imitation of contrasts* is included to facilitate generalization or transfer of learning from one sound in a key word to other, phonetically related words.

Once sound or word productions are well established, several methodologies that facilitate the flow of speech are outlined and exemplified in detail. Methods for implementing *gestural reorganization*, the pairing of motoric gestures with the rhythm and intonational

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stress of speech, are discussed (Rosenbek et al. 1976; Rosenbek 1983; Wertz et al. 1984), as is *reorganization using a pacing board* (Wertz et al. 1984, 273). *Contrastive stress drills* are provided, which may be one of the “most potent techniques for stabilizing apraxic articulation and improving prosodic profiles” (Wertz et al. 1984, 260). Chapter 4 also includes a discussion of the effectiveness of a treatment regimen combining nonspeech and articulation tasks, with production paced by a *metronome* (Dworkin et al. 1988). The work of Dabul and Bollier (1976), which involves the use of *facilitation techniques* to be used in addition to (or as an alternative to) auditory models, is summarized. Numerous *response facilitators*, derived from variations in the speed and method in which stimuli are presented, are included—such as judicious use of pause, intrusive schwa, and continuant or vowel prolongations (Rosenbek et al. 1973).

Speech sound sequencing therapy (Dabul and Bollier 1976) has been shown to increase the efficiency in leaving and finding accurate articulatory positions in adults with apraxia of speech. In this study, patients demonstrated more efficient conversation time by minimizing the time wasted in searching for correct articulatory postures. These patients frequently exhibited improved articulation of multisyllabic words when graphic or written stimuli were presented. Two patients showed improvement following speech-sound sequencing treatment where no progress had been made using a language-based aphasia therapy regime. *The Apraxia of Speech Stimulus Library* contains a wide variety of speech-sound sequencing activities

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ranging from consonant-vowel, vowel-consonant words through multisyllabic words and functional ADL sentences. It further provides graphic (or written) forms of every target utterance, which has been shown by these authors to improve articulation of multisyllabic words. Rosenbek et al. (1973) also recommend the beneficial use of written stimuli. Many of the target stimuli are also available in pictorial form for those patients who have difficulty reading.

The target utterance lists in *The Apraxia of Speech Stimulus Library* were developed with phonetic complexities and characteristics in mind. A wide variety of consonant and vowel sounds are sampled. Numerous target utterances are provided for production of consonant blends or clusters. The "advanced" lists consist of utterances containing fricative, affricate, interdental, and glide phonemes at the syllable level, which have been shown to evoke the highest number of errors in the speech of adults with apraxia of speech (Shankweiler and Harris 1966; Johns and Darley 1970; LaPointe and Johns 1975; Odell et al. 1990). Furthermore, voiced-voiceless contrasts are included, since voiceless phonemes have been shown to be easier to produce than their voiced counterparts (Rosenbek 1978; Wertz 1978). Additional lists permitting practice of the same articulatory gestures in meaningful units of increasing length are also included. Target utterance lists dealing with individual interests including sports, cooking and food, entertainment/relaxation/hobbies, and gardening and the outdoors are available.

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Throughout *The Apraxia of Speech Stimulus Library*, proven methods for improving the communication of adults with apraxia of speech have been integrated into a strong basic treatment program with a diversity of approaches. The materials found within the program follow a task continuum format with graphic (written) and supplemental pictorial stimuli that can be applied to a wide range of patient profiles. Furthermore, the program provides guidelines for home-based carryover programs that help the patient achieve automatic, generalized productions in various speaking situations. The scope and diversity of this program will be an invaluable tool in the restoration of meaningful communication in patients with this speech disorder.

Instructional Audience

The Apraxia of Speech Stimulus Library is designed for use with adults who have acquired apraxia of speech, or verbal apraxia, as a result of stroke or other traumatic brain injury. While some of the stimuli and suggested therapeutic methodologies can be adapted for use with the patient with chronic, severe apraxia of speech, the program is designed for use primarily with those individuals who have mild to moderately severe apraxia of speech.

Adaptations

While this program was developed for the patient who has verbal apraxia, the functional and high-interest vocabulary content and the easily viewed, readily recognizable words and drawings can also be used effectively for adults with aphasia or dysarthria.

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The following are suggested additional applications of the materials provided in this program:

- For patients with *reading comprehension* difficulties—word, phrase, sentence matching or identification tasks
- For patients with *auditory comprehension* difficulties—picture identification tasks at the one-step command level, identification of pictures named, or serially spoken phrase or sentence identification tasks
- For patients with *naming* difficulty—naming of pictures with phonetic cues, sentence completion tasks
- For patients with *dysarthric speech*—articulation of activity of daily living (ADL) word tasks, practice maintenance of accurate target phoneme production at various utterance lengths, pacing activities with multisyllabic word production

Suggestions for Individualization of Stimuli

The incorporation of personalized therapy materials into a rehabilitation program for the adult with apraxia of speech can significantly increase patient motivation and enhance progress. *The Apraxia of Speech Stimulus Library* contains 1350 individualized stimuli designed to meet the individual needs and interests of virtually any patient.

In addition to using the individualized target lists provided, the clinician can prepare personalized target utterance lists based on length, phonetic complexity,

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and additional interests or needs. Then, list the individualized target utterances on the blank data collection forms provided in each box, copying the blank forms as often as needed.

Names of family members, friends, important streets, cities, or states can be listed. Vocabulary items based on an individual's hobbies, work, or other interests should also be included. Skim newspapers, magazines, and specialty catalogs for vocabulary items of appropriate length and complexity.

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