Effects of Speech-Sound Production Treatment (SPT) and Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT) for individuals with Apraxia of Speech

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Case Scenario

I am a graduate student in the Speech and Hearing Clinic at the University of Nevada, Reno. I currently have a 53-year-old client who had a stroke three years ago, which resulted in her diagnosis of apraxia and aphasia. Although my client has multiple goals, her primary focus at this time is to improve her intelligibility and speech sounds.

After doing some research I found a therapy called Speech-Sound Production Treatment (SSPT), which attempts to improve speech sounds by breaking down words into their individual sounds, having success at the sound in isolation and then moving back up to the word level. After further research, I discovered a therapy called Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT). This particular therapy uses touch cues to certain articulators (tongue, lips, etc.) in order to manually guide the individual through the processes of producing the sounds. Both therapy treatments have good research outcomes, however it seemed that the latter might have greater success. To see the greatest gain in the shortest amount of time for my client, I would like to make the most educated decision on which therapy treatment would be most effective.

Introduction

Adults with apraxia struggle with articulation, which impacts speech intelligibility in communication with others. Apraxia is an articulation disorder that is characterized by difficulty with motor planning and sequencing sounds during connected speech. For example, some adults with apraxia may have difficulty with the sounds /p/, /b/, /t/, and /d/. One approach for treating apraxia of speech is to use the Speech-Sound Production Treatment (SPT). This approach uses a linguistic hierarchy starting with the sound in isolation and blending sounds together to produce syllables and words. Another approach for treating apraxia of speech is Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT) therapy. PROMPT therapy uses hands-on tactile cues to assist the client in using the appropriate articulators for sounds and sequencing. It is possible that one of these therapy approaches may result in more improvement in the least amount of time for speech production.

The following PICO question was presented:

In adults with apraxia (P), does a program of Speech-Sound Production Treatment (SPT) lead to better improvement of speech intelligibility in the sounds /p/, /b/, /t/, and /d/ (O) compared to PROMPT Therapy (C)?

Methods

The following search terms were used:
- Acquired apraxia of speech
- Stroke
- Speech-Sound Production Treatment (SPT)
- Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT)

The following databases were utilized:
- PubMed and PsycINFO

References


Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT) for individuals with Apraxia of Speech: Effects of Speech-Sound Production Treatment (SPT) and Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT) for individuals with Apraxia of Speech

Table/Authors/Date/Research Design

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<tr>
<th>Title/Authors/Date/Research Design</th>
<th>Purpose of Investigation</th>
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<tr>
<td>Effect of PROMPT therapy on speech motor function in a person with aphasia and apraxia of speech. Base, S. A., Schlosser, V., &amp; Van Lieshout, P. (2001) Case Study</td>
<td>Examine the effectiveness of PROMP of treatment specifically in the areas of acquisition and generalization in individuals characterized as having Broca's aphasia and apraxia of speech.</td>
<td>N=1</td>
<td>Age= 30-years-old The participant was 13 months post stroke and was diagnosed with severe nonfluent aphasia and severe apraxia.</td>
<td>Accuracy of production on the following phrases: • Impressive • Active declarative • Interrogative phrases</td>
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<td>Treatment of sound errors in aphasia and apraxia of speech: effects of phonological complexity. Maas, B. L., Robin, B., &amp; Shapiro, J. (2002) Case Study</td>
<td>Examine the effects of syllable complexity on treatment outcomes in two patients with acquired sound production difficulties.</td>
<td>N=2</td>
<td>P1: 50-years-old, 5 years post stroke P2: 69-years-old, 5 years post stroke Both participants were diagnosed with aphasia and moderate-to-severe apraxia of speech.</td>
<td>Accuracy of production (Scores on repetition tasks) Overall, the study concluded that significant improvement was seen for both patients, however only in singletons and not three-element s-clusters. P1: • Singletons: from 34.1% to 58.3% • Clusters: from 18.8% to 34.6% P2: • Singletons: from 12.1% to 32.6% • Clusters: from 2.3% to 9.0%</td>
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<td>Efficacy of the PROMPT system of therapy for the treatment of acquired apraxia of speech: A follow-up investigation. Square, C., Chumpelik, D. A., &amp; Adams, S. (1986) Case Study</td>
<td>Examine whether or not motor speech production improved after the administration of the PROMPT System of therapy on 24 pairs of minimally contrastive phonemes.</td>
<td>N=3</td>
<td>Ages were not given. All participants were at least 1 year post stroke. All three participants were diagnosed with apraxia of speech and Broca's aphasia.</td>
<td>Accuracy of production (Scores on repetition tasks) Overall, significant improvement was seen after administration of PROMPTs in all trained items and with two of the subjects, slight improvement was seen on untrained items. P1: • 80% accuracy for /d/, /l/, /n/ and /s/. P2: • 90% accuracy for /l/, /n/, 80% accuracy for /d/, /n/ P3: • 85-95% accuracy on specific sounds</td>
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<td>Sound production treatment: application with severe apraxia of speech. Wambauh &amp; Maayzicki (2010) Case Study</td>
<td>Examine the acquisition, response generalization and maintenance effects of speech-sound production treatment&quot; in a individual characterized as having severe apraxia of speech, nonfluent aphasia and verbal perseverations.</td>
<td>N=1</td>
<td>Age= 55-year-old The participant was 2 years post stroke and was diagnosed with apraxia of speech and nonfluent aphasia.</td>
<td>Accuracy of production (Scores on repetition tasks) Overall, the patient saw significant improvement in all trained items and with two of the subjects, slight improvement was seen on untrained items. P1: • 80% accuracy for /l/, /n/, /d/ and /s/. P2: • 90% accuracy for /l/, /n/, 80% accuracy for /d/, /n/ P3: • 85-95% accuracy on specific sounds</td>
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Discussion

External Evidence: Both SPT and PROMPT are effective treatments, however, SPT may support greater generalization to untrained sounds.

Evidence Informed by Clinical Practice: Due to the limited training required for SPT, I feel much more comfortable providing this therapy. In addition, my supervisor has treated clients using SPT and has had success with previous clients.

Evidence Informed by Client: All of the participants reviewed relate to my client because they have all received diagnoses of apraxia of speech and aphasia subsequent to a stroke. Specifically, PROMPT would not be appropriate for my client since she would be uncomfortable with the physical cues required in this treatment.

Summary: After reviewing the external evidence, client and family interests and clinician/supervisor concerns, I feel that SPT would be the most appropriate treatment for my client. The client will be seen twice a week for one-hour sessions, for a 12-week semester. She will have 5 specific sound goals.