Efficacy of the Iowa Oral Performance (IOPI) in Dysarthria: A Case Study

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ABSTRACT

The purpose of this study was to determine a variety of ways to use the Iowa Oral Performance Instrument (IOPI) in therapy in order to increase oral agility and swallowing in a client with a diagnosis of spastic-athetoid developmental dysarthria. A variety of precise protocols were performed over the course of two semesters of treatment to ensure that the IOPI Instrument was of maximum benefit to the client. First, oral motor exercises targeting placements of the tongue bulb were performed prior to collecting data using the IOPI. Second, each measurement was taken in a specific sequence to reduce the effects of fatigue and adaptability of the tongue and lip musculature. Third, a custom-made visual was used during treatment to allow the client to view a cross-section of the vocal tract and the placement of the bulb for each measurement obtained. Fourth, self-adhering tape was wrapped around the tongue bulb to retain its position in the oral cavity by avoiding slippage. Discussion pertains to overall improvement in the areas of oral agility and swallowing with each protocol in place as well as optimum bulb placement in order to derive maximum benefit from IOPI treatment.

PURPOSE

The purpose of this study was to describe the usefulness of treatment using the Iowa Oral Performance Instrument as displayed in previous studies while explaining the use of procedures to measure labial and lingual strength and endurance as well as strategies and modifications to the instrument in order to obtain precise measurements.

RESEARCH QUESTIONS

1. Were there any significant differences between pre- and post-treatment data in therapy administered in the fall semester of 2013 and the fall semester of 2014?
2. Did the client’s perceptions of performance change with modifications to the bulb placement within the oral cavity?
3. Was there any difference in the client’s perceptions of fatigue and performance level when alternating labial and lingual tasks?
METHOD

I. Client Background
   a. Cerebral Palsy
   b. Significantly Delayed Motor Milestones
   c. Received Intensive Therapeutic Services for First Five Years
   d. Early Speech Therapy Services with Focus on Control and Movement of Lips, Tongue, and Jaw

II. Data Collection
   a. Comparison of Fall 2013 and Fall 2014
      i. Data Tables (Minimum, Maximum, Mean, Probability, t-Value, SD)
   b. Graphs
      i. Fall 2013
         1. Lingual Strength Across Sessions
         2. Labial Strength Across Sessions
      ii. Fall 2014
         1. Lingual Strength Across Sessions
         2. Labial Strength Across Sessions
   c. Visual Aid of Vocal Tract used for Placement
   d. Self-Adhering Tape used to Modify the Surface Texture of the Bulb
   e. Alternation of Labial and Lingual Tasks to Reduce Fatigue
   f. Oral Motor Exercises to Strengthen Lip and Tongue Musculature and Increase Awareness of Muscle Movements needed for Using the IOPI

RESULTS

Although the results were variable across both semesters, significant improvement was observed for interlabial lip strength in the fall of 2013 and posterior tongue strength in both the fall of 2013 and 2014. With the exception of the domains of anterior tongue strength and left labial strength, the mean measurement for every domain increased from pre-treatment to post-treatment. Upward trends are visible in all areas within the fall of 2013 and all but two areas in the fall of 2014.

CLINICAL IMPLICATIONS

Based on the perceptions of the clinicians and the client, the modifications made to the IOPI were successful in facilitating accurate measurements using the IOPI. The pre-treatment and post-treatment ratings in both semesters indicate improvement in labial and lingual strength due to the use of the IOPI.
SELECT REFERENCES


SELECT RESOURCE

http://www.iopimedical.com/