Introduction

Whether or not stuttering is a speech fluency disorder with a language component or is a separate language disorder remains debatable. Stuttering may be a motor speech disorder involving speech processing difficulties at some level, especially considering some of the major characteristics such as rate deviations, excessive coarticulation, and abnormal pausing (Ward, 2011).

It has been suggested that the occurrence of speech errors in cluttering (Kay and Daly, 2006) is due to a motoric deficit, as phonological processing in clutterers may involve any phonological or lexical processing. Auditory monitoring has been suggested for articulatory monitoring tasks (e.g. /bə/). Phoneme segmentation of initial sounds (16), phonological encoding abilities, they are expected to be faster and more error-prone on a phoneme monitoring task, suggesting pre-articulatory problems at the level of phonological encoding (Sassekaran et al., 2006).

This ongoing study aims to increase power by continuing participant recruitment and adding more participants to our database. The study will also aim to increase the power by adding more groups, such as speech-language pathologists and control groups.

Methods

Participants

Participants were recruited from The Speech and Language Pathology and Audiology department of the University of South Carolina, Columbia, SC, USA. All participants were native speakers of English, with normal hearing, and were not involved in any other research studies. The participants were divided into the following groups:

- Stutterers
- Clutterers
- Controls

Participants were divided into the above groups, and each group was further divided into subgroups according to their age, gender, and severity of stuttering or cluttering.

Pre-tests

Participants completed the following subtests from the Phonological Assessment of Language Processing (PALPA) (Palm, 2012):

- Auditory Repetition of Words and Nonwords (9), Word Rhyme Judgment (15), Phonological Segmentation of Final Sounds (16), Phonological Segmentation of Final Sounds (17), and Picture Naming (35)

Phoneme Monitoring

Tasks were a partial replication of Sassekaran et al., (2006)

Participants monitored for the presence or absence of a target phoneme (consonant + schwa, e.g. /bə/) during silent picture naming.

Participants were familiarized with the words and required to name them correctly prior to the experiment.

28-bisyllabic words were used in this experiment. The target phoneme occurred in one of four positions, CVC/CVC (e.g. /gɪf/). This was the strongest phoneme position effect, with more errors in the CVC/CVC position (Zaalen, Wijnen, & Dejonckere, 2009).

Auditory Monitoring

An auditory monitoring task was developed to study phoneme monitoring abilities.

Participants monitored for one of four tones (500Hz, 1000Hz, 2000Hz, or 750Hz) among a sequence of four tones (same frequency) with addition of 1500Hz as a possibility, using a similar procedure as in the phoneme detection task.

Participants were tested in a quiet environment, and the stimuli were presented at a comfortable level of loudness.

Simple Motor Task

Participants pressed the spacebar as soon as a tone was presented, with a reaction time threshold of 0.1000s, 0.5000s, 1000ms, 1500ms or 2000ms.

Results

Naming and PALPA Tests

- Low error rates on naming of nonword target words, across groups (Mean: /dɪˈlɑːt/, /ˈdɪˌlɑːt/, /ˈdɪˌlɑːt/, /ˈdɪˌlɑːt/)
- No group differences were found for repetition of real words (PALPA 9), word rhyming judgment (PALPA 15), or final segmentation (Palm, 2012)
- At all experimental groups made more errors than controls on initial sound monitoring (PALPA 16), suggesting that a nonword requiring picture selection (PALPA 14), and naming (PALPA 53) abilities
- Categorization errors made more repetitions on nonwords (PALPA 9)

Discussion and Conclusions

- Clutterers’ RTs in the phoneme monitoring task were not significantly different from controls or stutterers, while stutterers had significantly longer RTs than controls (replicating Sassekaran et al., 2006)
- Differences in monitoring responses were not due to an overall motoric deficit, as there were no differences in simple motor abilities

This ongoing study aims to increase power by continuing participant recruitment.