Communicative use of prosodic contrasts in severe speech impairment. Rupal Patel, Aviva Krauthammer & Lisa Wayne, Dept. of Speech Language Pathology and Audiology, Northeastern University, Boston, MA, USA.

Prosodic modulation allows speakers to encode affective, semantic and syntactic information and helps listeners segment continuous speech into words. If speakers with severe speech impairment could exploit this informative signal, they could signal their intentions with greater communicative effectiveness. This study sought to better understand whether speakers with severe speech impairment due to cerebral palsy could use prosodic cues to signal meaningful differences in the intention of their vocalization. Four speakers with severe dysarthria due to cerebral palsy (DYS) and four gender-matched non-impaired speakers (NIC) produced five 4-syllable phrases with contrastive stress place on either the first, second, third, or fourth syllable and with neutral prosody. Their productions were analyzed acoustically to identify changes in syllable duration, fundamental frequency (F0), and intensity on the target syllable. Preliminary results indicated that DYS speakers used elongated duration, increased peak F0, increased average F0, and increased average intensity to mark the target syllable. These cues, however, were not consistently employed on all stress locations. While NIC speakers also used duration and F0 cues contrastively, their stressed modifications were smaller in extent. Possible physiological constraints will be discussed in order to explain the findings and provide insights into developing a model of prosodic control in severe speech impairment. Implications on this work include the potential to develop new intervention methodologies that focus on prosody and to use this residual prosodic control to access communication devices in order to improve communicative effectiveness.