

Effects of Tactile Repetition Priming on Phoneme Recognition
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Motor-based treatment approaches such as the Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT; Hayden & Square, 1994) utilize multi-sensory (tactile-kinesthetic-proprioceptive {TKP}, auditory and visual) cues. What we do not know is whether exogenously delivered (i.e. as provided by a speech therapist) TKP inputs, apart from being used directly as feedback by the speech-motor-control system, can also be utilized by the cognitive-linguistic system to facilitate phoneme perception and word retrieval. The present study investigated the effectiveness of exogenous driven TKP inputs for improving phoneme recognition in both high- and low-frequency spoken words presented auditorily. Congruent (match between sound and tactile cue) and incongruent (mismatch between sound and tactile cue) TKP inputs were provided by an experienced PROMPT therapist who was blinded to the auditory targets. 23 native English speakers participated in this study. Results indicated a significant main effect of condition ($p=0.04$; congruent vs. incongruent) and a significant advantage for congruent TKP priming ($p=0.01$) for the low-frequency words as opposed to the high-frequency words ($p=0.77$). These results corroborate with recent findings that suggest neural processing of speech broadly integrates event related information across multiple modalities (auditory, tactile, visual), and that exogenous TKP inputs may affect phoneme recognition in spoken words (cf., Derrick & Gick, 2010; Ito, Tiede & Ostry, 2009). Further, the presence of word frequency effects may suggest that the way TKP inputs influence pre-lexical selection is biased by the usage sensitivity of how lexical information is stored in the mental lexicon (Luce & Pisoni, 1998; Marslen-Wilson, 1987).