**Title**: Evaluating Switch Costs using Alternating-Runs and Random Sequencing Using the Consonant-Vowel/Odd-Even Task in Younger, Healthy Older, and Mildly Impaired Older Adults

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**Abstract**:

The Consonant-Vowel/Odd-Even task (CVOE, Minear & Shah, 2008) is a task-switching paradigm that measures local and global task-switching costs. Participants are shown bivalent stimuli (e.g., A-18) and are asked to classify the letter (consonant/vowel) or the number (odd/even). Global switch costs (i.e., error rates and latencies for switch vs. pure trials) have been shown to increase as a function of both age and cognitive impairment. Older adults, however, have shown reduced local switch costs (i.e., switch vs. non-switch trials within switch blocks) for RTs relative to younger adults, suggesting that they are less tuned to the task (Huff, Balota, Minear, Aschenbrenner, & Duchek, 2015). Prior work has investigated switch costs using an alternating-runs sequencing in which task switching is predictive (i.e., CV-CV-OE-OE-CV-CV, etc.). The present study compares alternating-runs to a separate block in which switching occurs unpredictably (i.e., random CV/OE trials). Older adults again showed greater RTs versus younger adults across all trial types. Further, older adults showed increased global switch costs for both sequences, but local switch costs were only greater for the random sequence. RT distributions were further investigated. Regarding error rates, younger and older adults showed similar errors, but mild cognitively impaired (MCI) older adults had significantly higher error rates. Our findings suggest that task-set reconfiguration processes associated with local switch costs are particularly taxed for older adults when switching is nonpredictive, and this pattern is exaggerated for those with mild cognitive impairment.

**Word Count:** 236/250