**Title**: Comparing Random versus Alternating-Runs Switch Costs in Younger, Healthy Older Adults, and Mildly Impaired Older Adults using the CVOE Switch Task

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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). Previous research has shown that global switch costs (i.e., error rates and latencies for switch vs. pure trials) increased as a function of both age and cognitive impairment. Older adults, however, show reduced local switch costs (i.e., performance on 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 sequence with switches occurring via a predictive sequence (i.e., CV-CV-OE-OE-CV-CV, etc.). The present study compares this sequence to a separate block in which switching occurs unpredictably (i.e., CV-OE-OE-OE-CV-OE, etc.). Consistent with previous findings, older adults showed greater RTs vs. 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 unpredictive sequence. For younger and healthy older adults, there were no differences in error rates across trial types; however, mild cognitively impaired (MCI) older adults had significantly higher error rates. These patterns were further investigated via ex-Gaussian analyses and vincentile plots. Our findings suggest that task-set reconfiguration processes associated with local switch costs are particularly taxed for older adults when switching is nonpredictive, especially for those with cognitive impairment.

**Word Count:** 276