While loss of episodic memory has traditionally been considered a major symptom of Alzheimer’s Disease (AD), disruptions of attentional processing have also been shown to be associated with early onset AD. Because of this, performance on a task that relies heavily on attentional processes may be provide a promising avenue to explore how early onset AD disrupts cognitive processing compared to healthy aging. As such, the present study explored this through the use of a task-switching procedure. In this paradigm, subjects are first presented with two blocks that each focus on only one unique task (pure blocks) before being presented with a block of switch and non-switch trials that combines tasks from the previous two blocks. Mean error rates and reaction times (RTs) typically increase on switch trials compared to non-switch trials (the local switch cost). The global switch cost then refers to differences between the non-switch trials and the pure trials that results from maintaining multiple tasks.

The Consonant-Vowel Odd-Even task (CVOE, Minear & Shah, 2008) is a simple task-switching paradigm that allows the measurement of both local and global task switching costs. In this task, subjects a presented with a letter-number pair (e.g., A 15) and are asked to either classify the letter in the pair as being a consonant or vowel or to classify the number in the pair as being odd or even. Previous work by Tse et al. (2010) has shown that local RT costs were lower for individuals with mild AD compared to a healthy control group. Additionally, work by Huff et al. (2015) has shown that global switch costs increase as a function of age and AD.

Both the Tse et al. (2010) study and the Huff et al. (2015) study used an alternating runs sequence to present switch and non-switch trials. In this sequence, subjects complete the same task twice before the instructions switch to the second task (i.e., CV, CV, OE, OE, CV, CV). Thus, every other trial is a switch block. The present study incorporates both an alternating runs switch task and a randomized switch task (i.e., CV, OE, OE, OE, CV, OE) in which no discernable pattern of task switching can be detected. Overall, it is expected that mean error rates and RTs will be higher on the switch tasks. Specifically, we hypothesize this local switch cost will be higher on the randomized task relative to the alternating runs task due to the lack of pattern.