

# An electroencephalographic examination of the origin of cognitive decline in aging adults during the colour word Stroop task

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**Abstract:** It is consistently found that aging adults are limited in their ability to ignore distracting information while performing a cognitive task. To delineate the origin of this cognitive decline electroencephalography (EEG) was used to examine the brain activity of young adults (aged 20-30) and older adults (aged 45-65) as they performed a Stroop task. This task was designed to isolate stimulus and response level processing. Young adults and older adults showed similar behavioural results however, the underlying brain activity was significantly different in older adults. Specifically the P3a component was significantly larger and delayed in older adults indicating additional processing was required for reorienting attention. Additionally the N450 was enhanced over the parietal region in older adults. These results indicate that with age additional processing is required however there is not a general compensatory process but different compensatory mechanisms to serve specific stimulus or response related functions.