

## **Does processing speed protect from age-related decline in cognitive control ?**

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Age-related difficulties have been reported on proactive control whereas reactive control seems to remain intact (Braver, Gray, & Burgess, 2007; Braver, 2012). This study investigated the potential influence of speed of processing abilities on the age-related decline in proactive control. We used a working memory recognition paradigm involving proactive or reactive cognitive control by manipulating the interference level across items. 80 young adults (18-29 years old) and 80 healthy older adults (60-89 years old) were included. The main results revealed significant effects of age on sensitivity to interference. As expected, reactive control performance remained intact with aging (similar interference effect in the two groups). In contrast, we observed a larger interference effect in the proactive condition in aging. Finally, when the groups are matched according to their processing speed (assessed by the Code task of the WAIS III, with both younger and older adults having a score comprised between 60 and 93), the effect of age on sensitivity to interference disappeared. In other words, when younger and older adults had similar speed of processing abilities, no age-related proactive control decline was observed. In conclusion, beyond the fact that this study confirms the selective age-related decline in proactive control, it also indicates that speed of processing, a measure considered as reflecting the integrity of cognitive functioning during aging (Salthouse, 1996), influences the efficiency of proactive control in that population.