

# A component of age-related changes in executive function

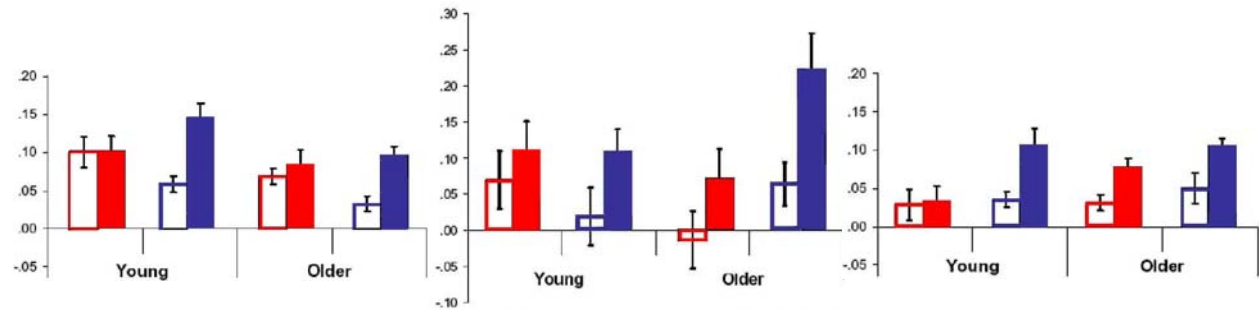
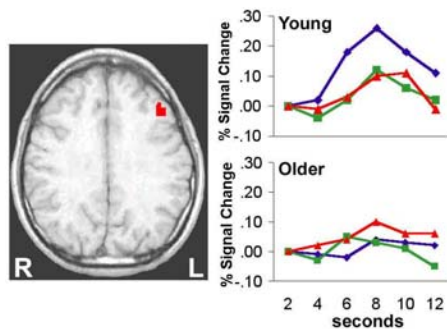
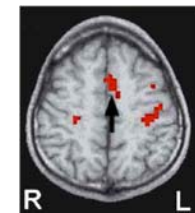
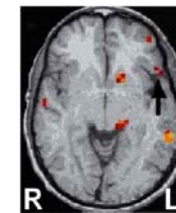
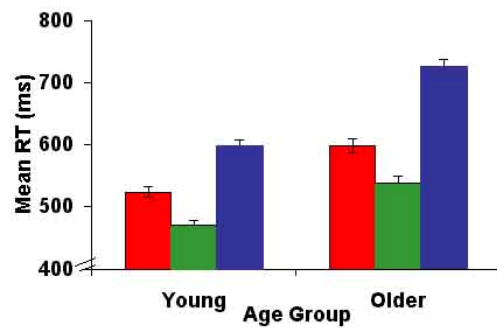
read		repeat		refresh	
wheat	chair	chair	chair	chair	●

read		refresh	
wheat	chair	chair	●

read		refresh	
tulip	house	wolf	●
robe			

■ Read ■ Repeat ■ Refresh

Read Refresh  
1 3 1 3  
□ ■ □ ■



*Refreshing* \_ thinking briefly of an already active representation:  
an executive function that briefly maintains representations and foregrounds them from among other active representations

Older adults (OA) are disproportionately slow compared to young adults (YA) to refresh an item they just saw and show less refresh-related activity in left DLPFC

When the number of active representations is increased:

YA show increased dorsal frontal activity selectively during refreshing (Refresh 3 > Read 3), whereas OA do not

OA show increased activity in anterior VLPFC, perhaps reflecting engagement of controlled semantic access (*Badre & Wagner, 2002*) that may help compensate for impoverished access to perceptual representations

An age-related deficit in this relatively simple component executive process would have implications for a wide range of cognitive tasks (e.g., working memory, encoding and remembering in LTM, comprehension, problem-solving)

*Johnson, MK notes*

## References

*Johnson, Reeder, Raye, & Mitchell, 2002, Psychological Science, 13, 64-67*

*Johnson, Mitchell, Raye, & Greene, 2004, Psychological Science, 15, 127-132*

*Raye, Mitchell, Reeder, Greene, & Johnson, in press, Journal of Cognitive Neuroscience.*