

# Attentional Inhibition following Multiple Orienting Cues is Not Altered in Healthy Aging

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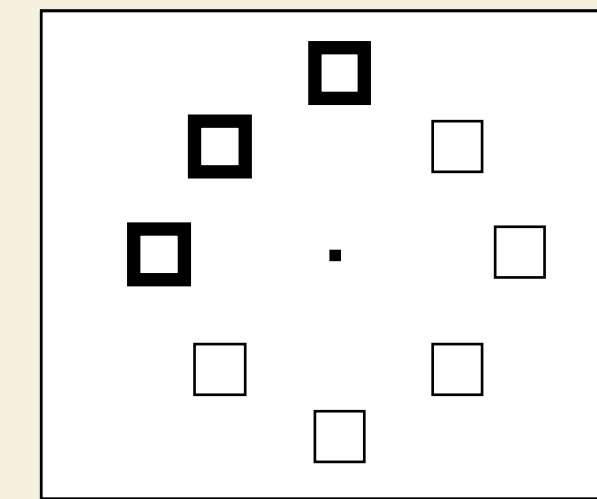
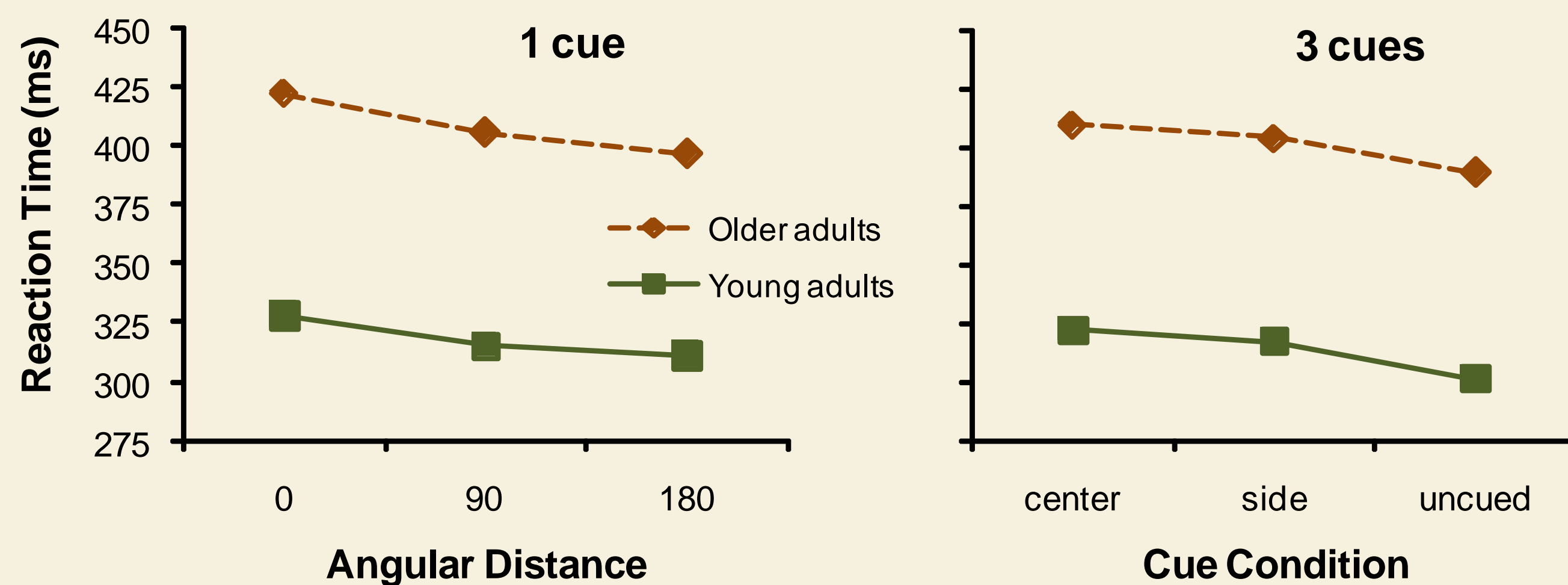
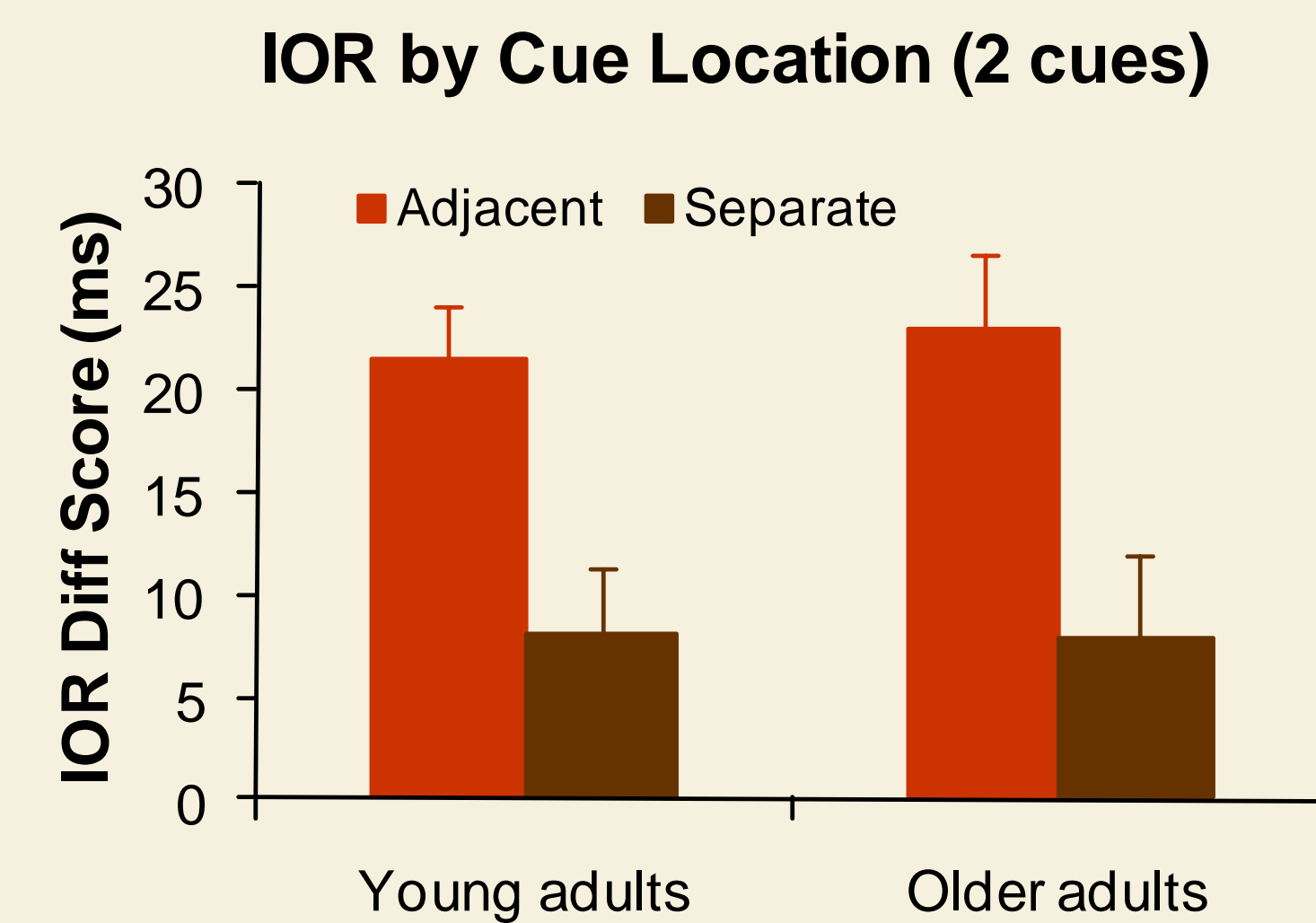
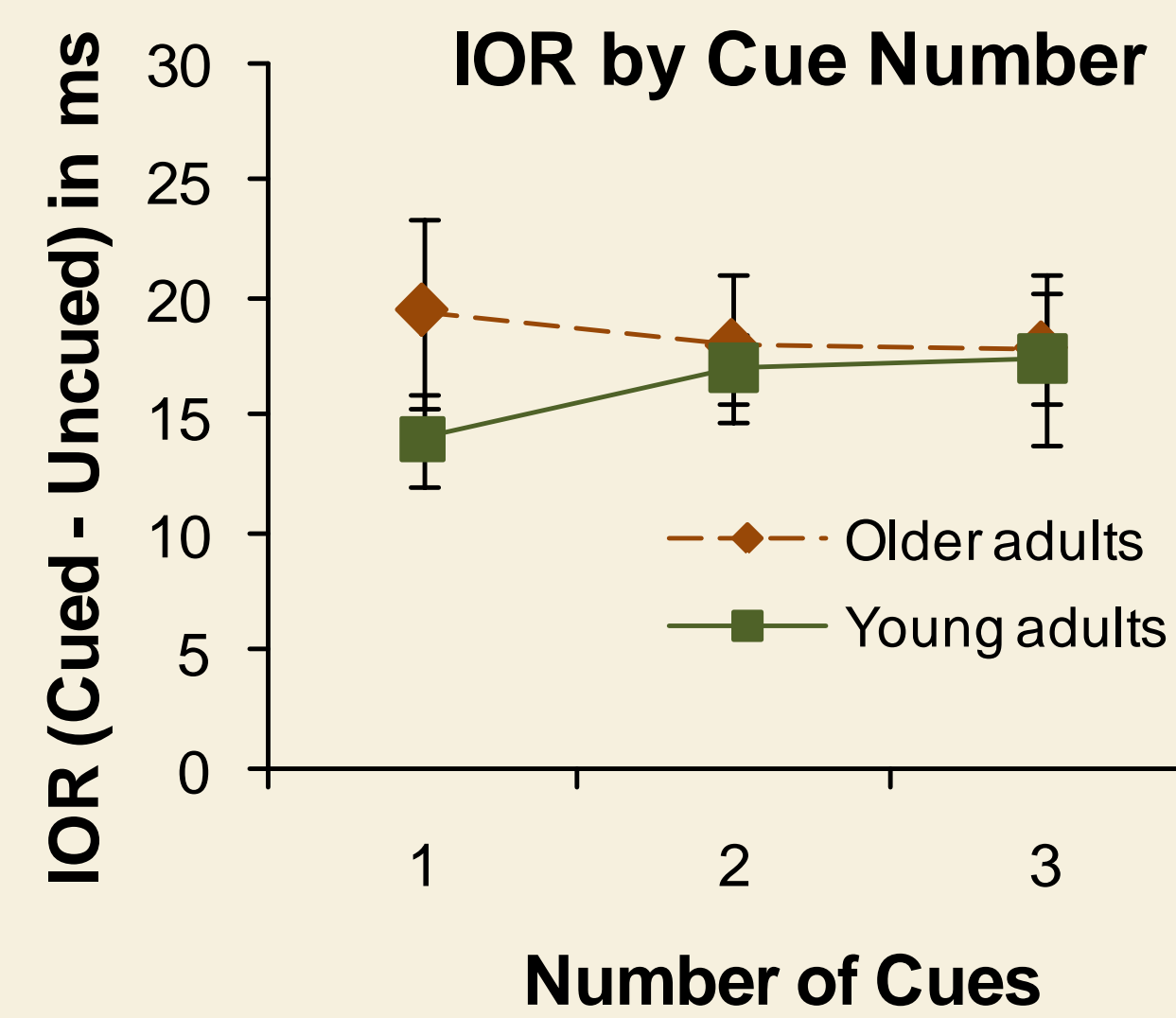
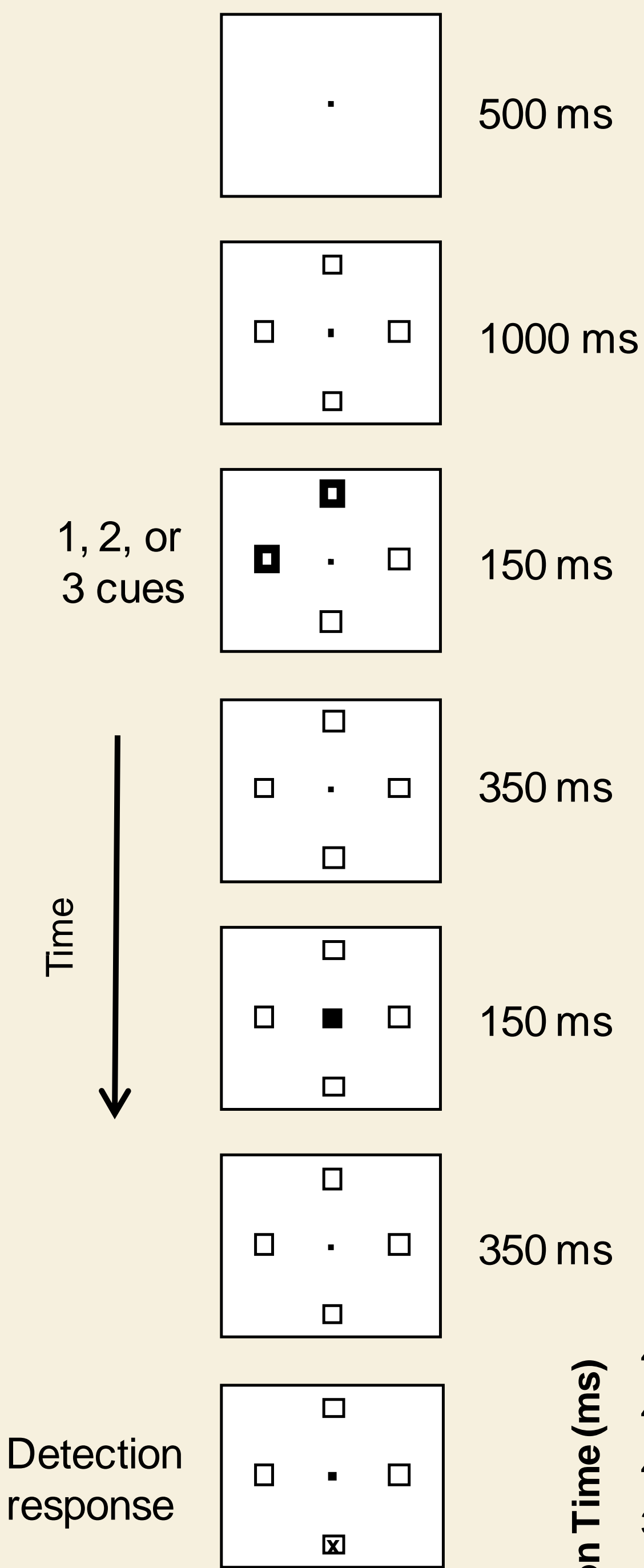
## Introduction

Inhibition of return (IOR) is a phenomenon of attentional orienting that is indexed by slower responses to targets presented at previously attended locations. The purpose of this study was to examine age differences in IOR associated with multiple orienting cues. Using a simultaneous cuing paradigm, we compared three accounts of multi-location IOR:

- **Limited resources:** Inhibition is a resource that can be distributed to a limited number of locations.
- **Regional inhibition:** Adjacent cues are treated as an inhibited region.
- **Net vector averaging:** A gradient of inhibition spreads from the vector average of multiple cues.

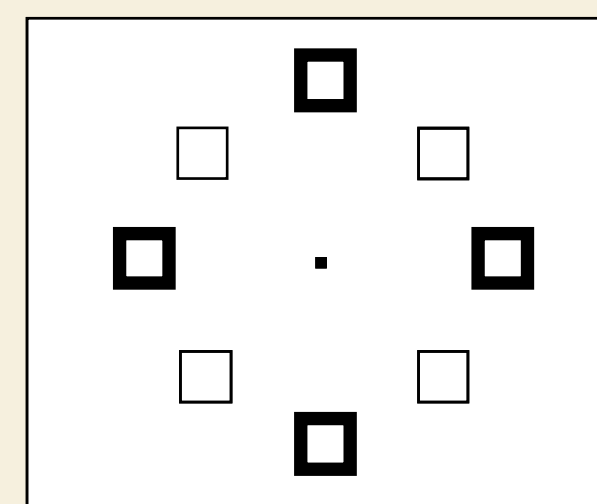
20 YA (18-22 yrs)  
20 OA (61-78 yrs)

## Experiment 1



1, 3, 5, or 7 cues

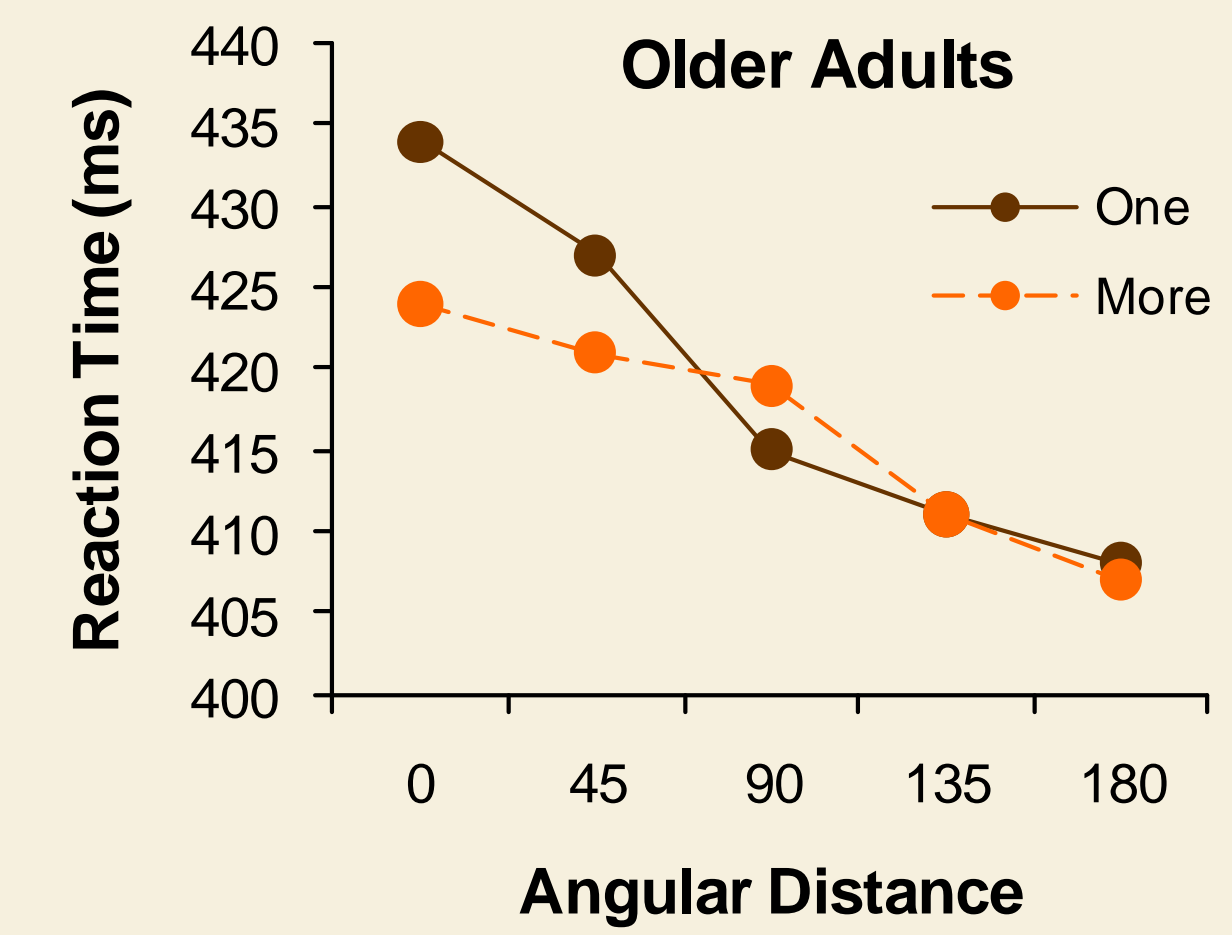
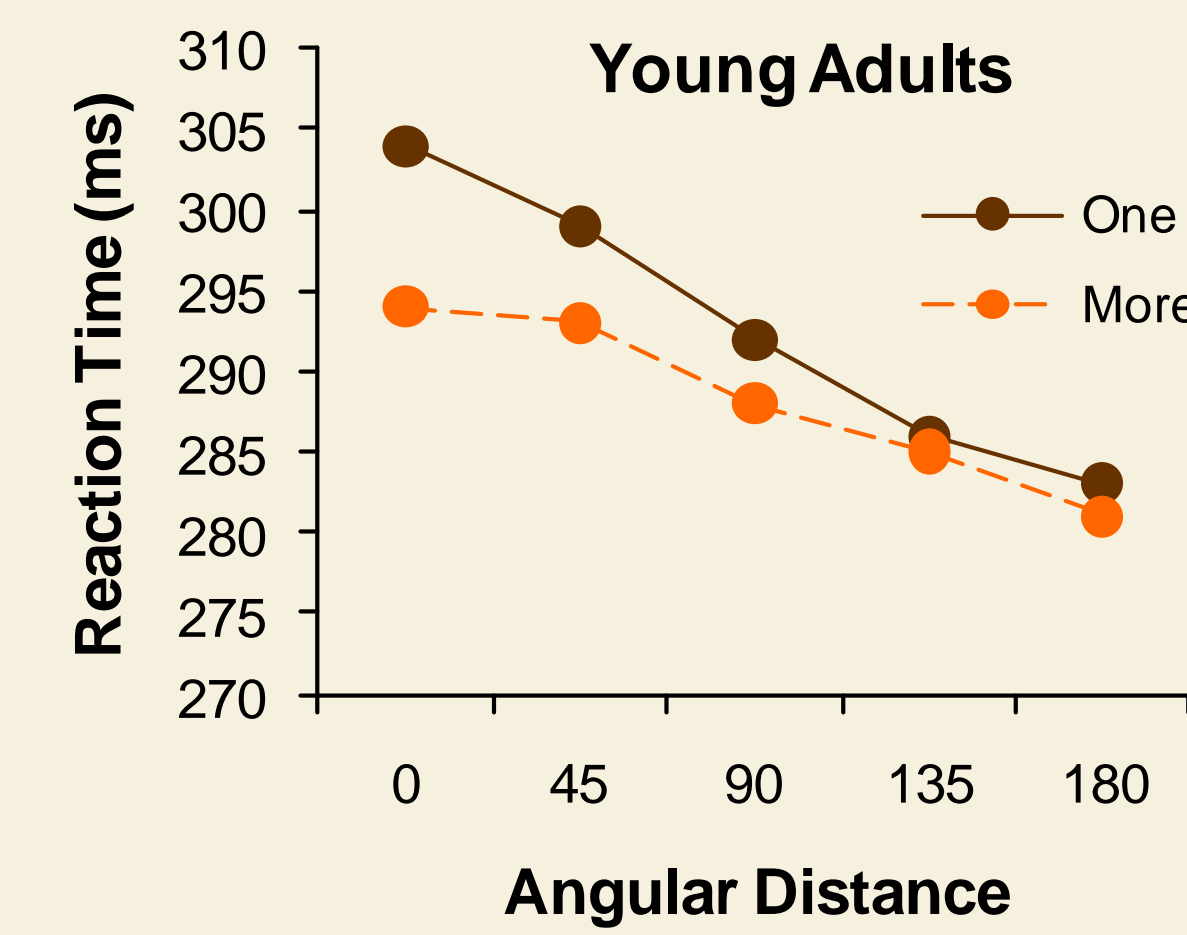
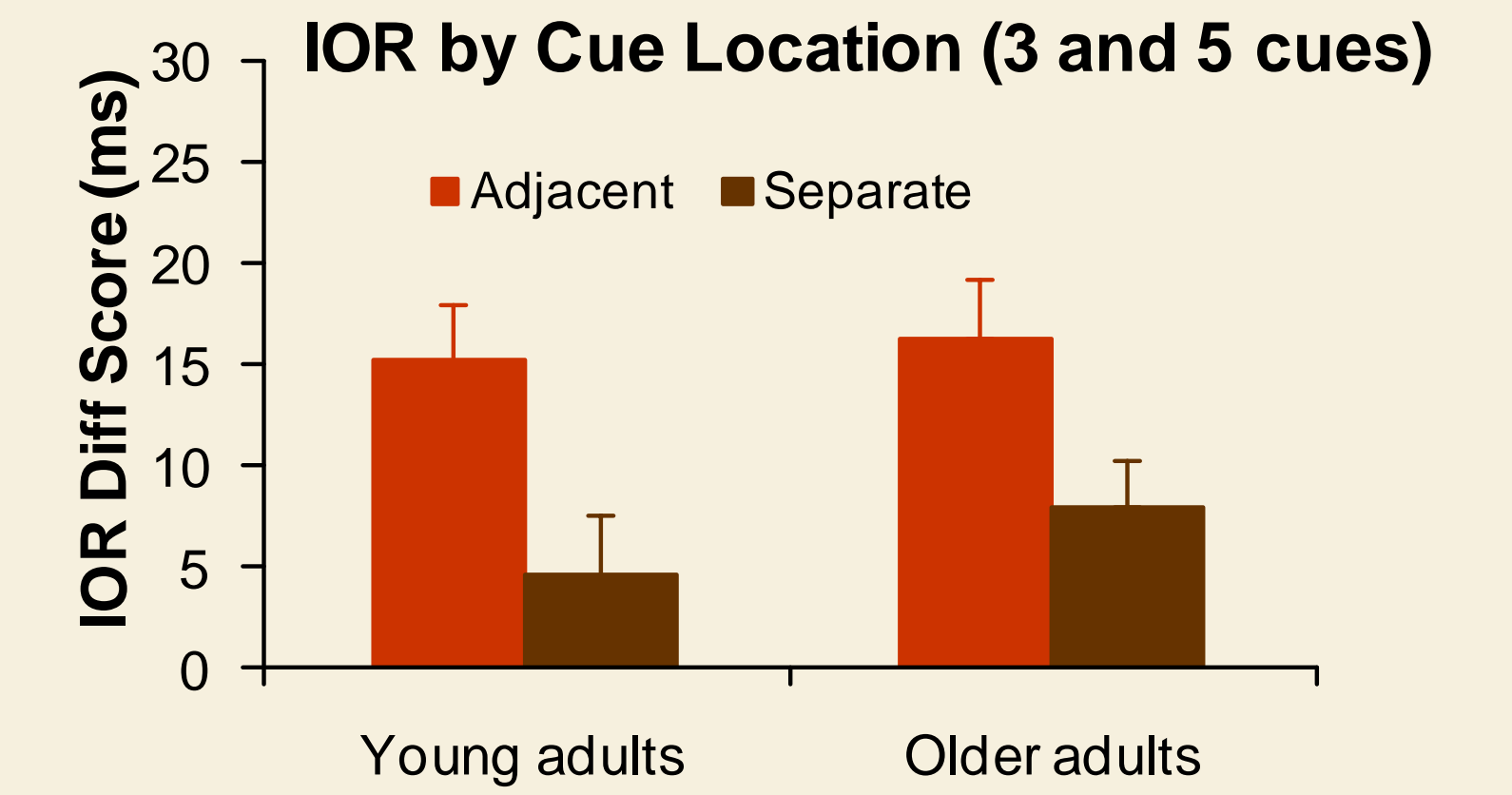
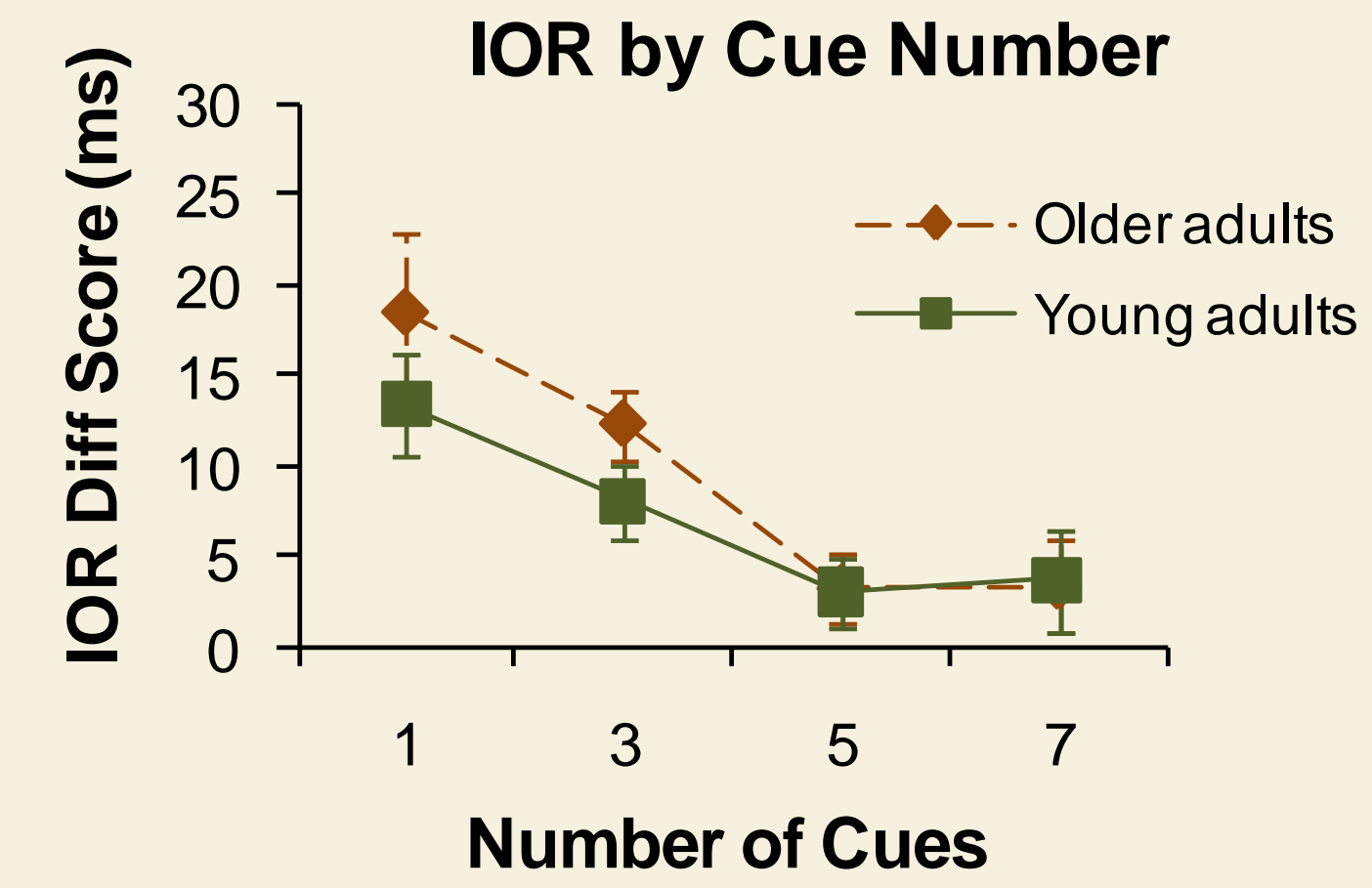
32 YA (18-30 yrs)  
32 OA (61-87 yrs)



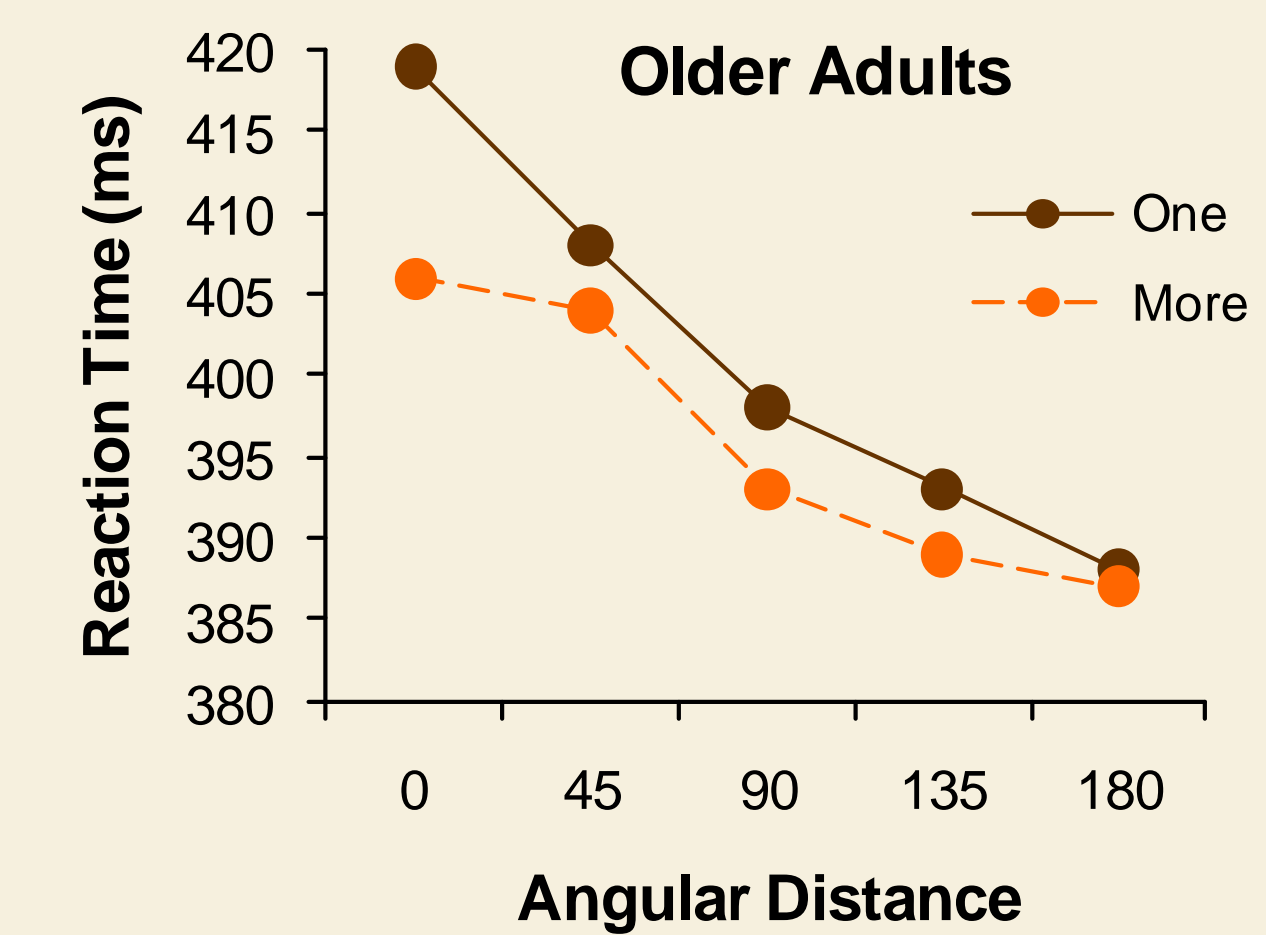
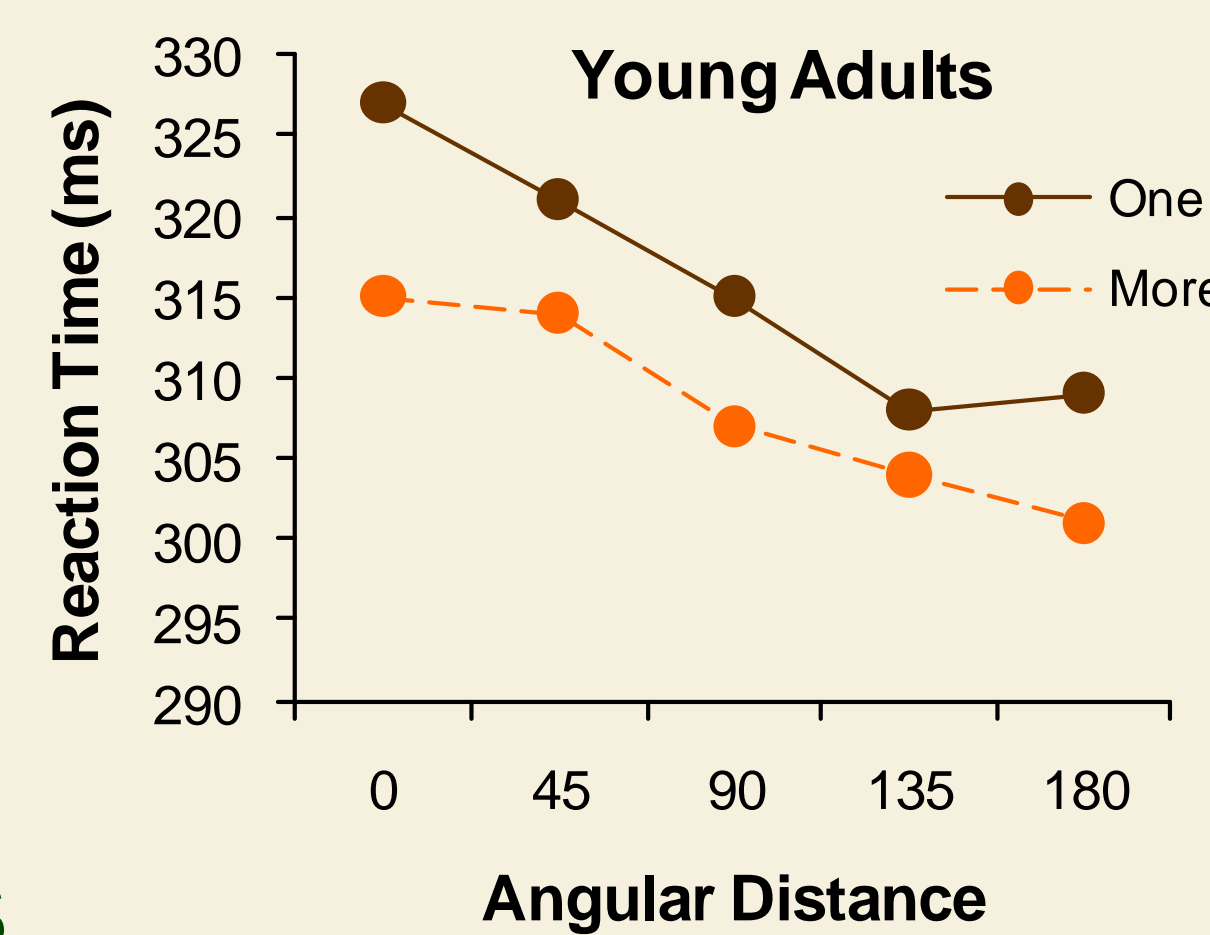
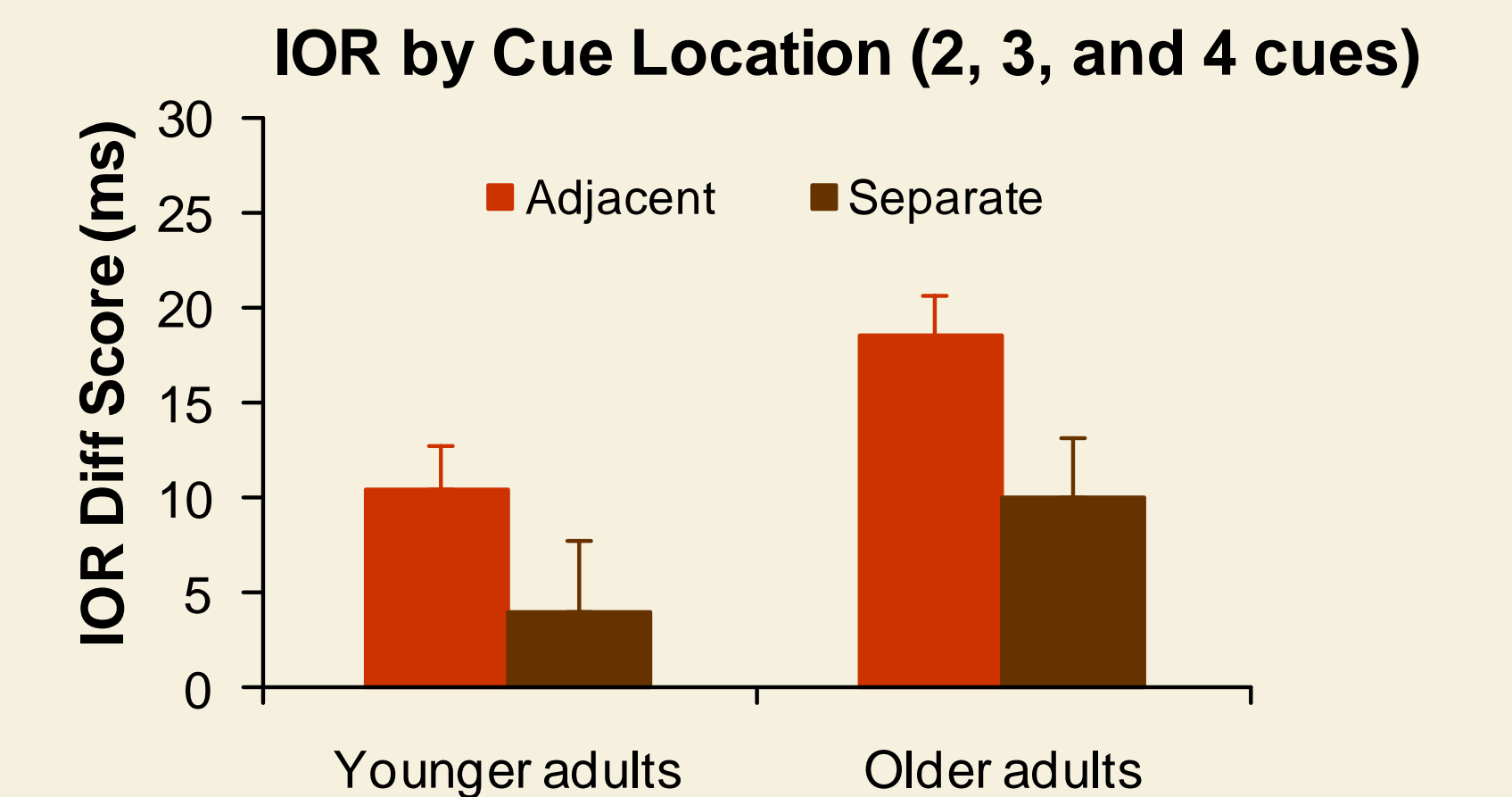
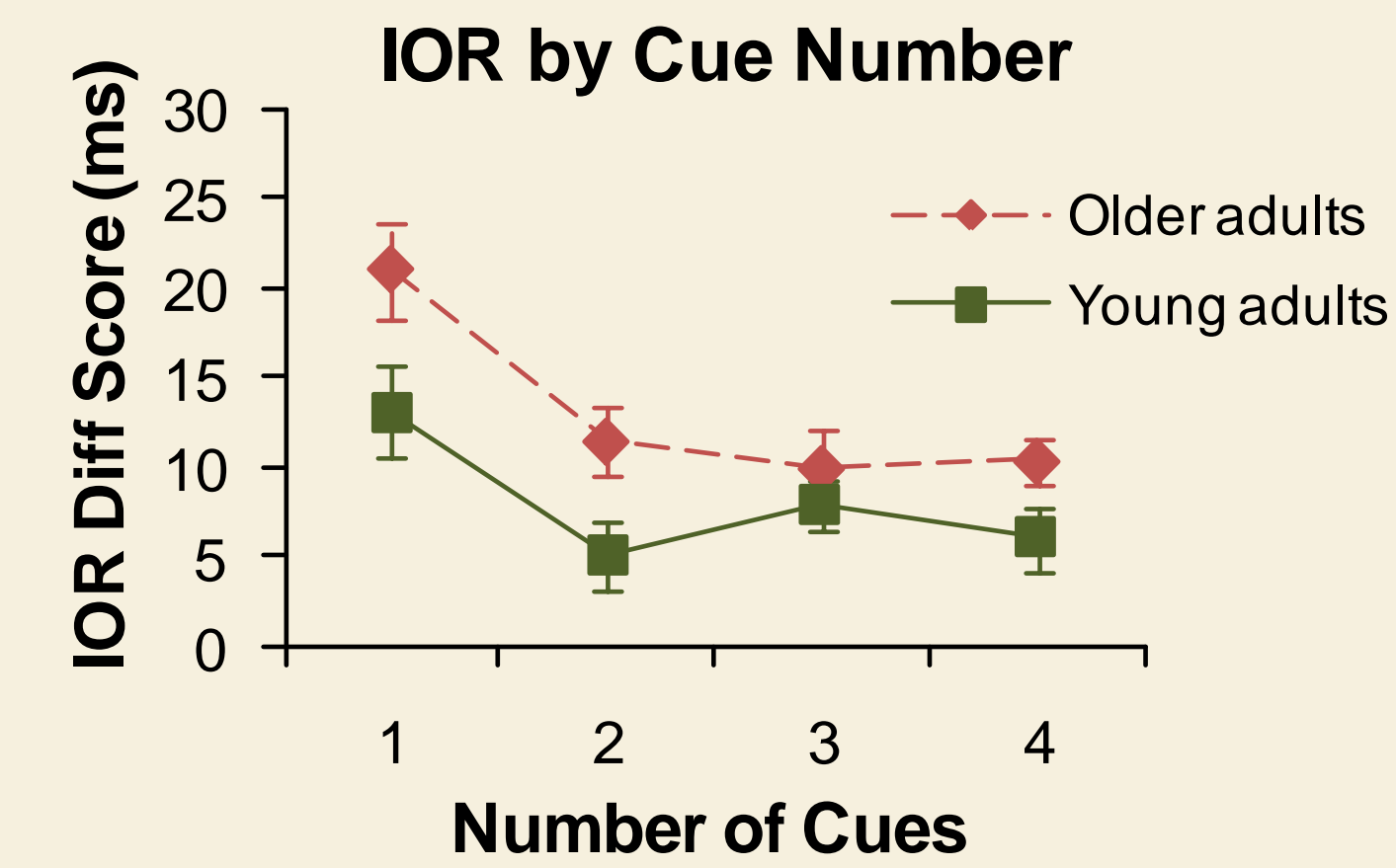
1, 2, 3, or 4 cues

44 YA (18-24 yrs)  
44 OA (60-82 yrs)

## Experiment 2



## Experiment 3



## Conclusions

- Both young adults and older adults maintained inhibition at multiple (up to four) locations.
- Relative to a limited resource account and a regional inhibition account, net vector averaging of cues with a gradient distribution of inhibition (Klein, Christie, & Morris, 2005) best explained IOR patterns, although there was also evidence of IOR resulting from local stimulation.
- Older adults were as able as young adults to calculate the net vector average from multiple (up to 7) cues and distribute inhibition accordingly. The present study provides additional evidence that inhibition of return is an element of spatial orienting that is relatively preserved in later life.