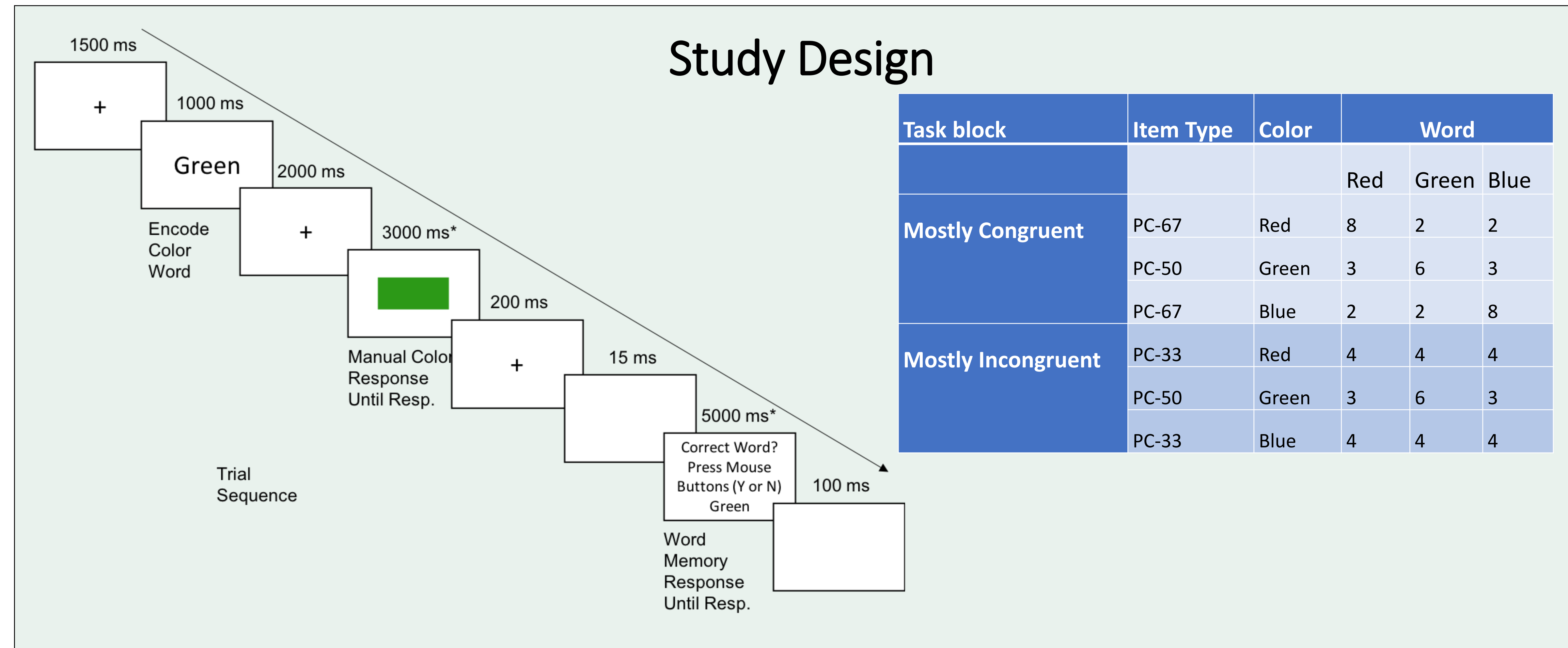


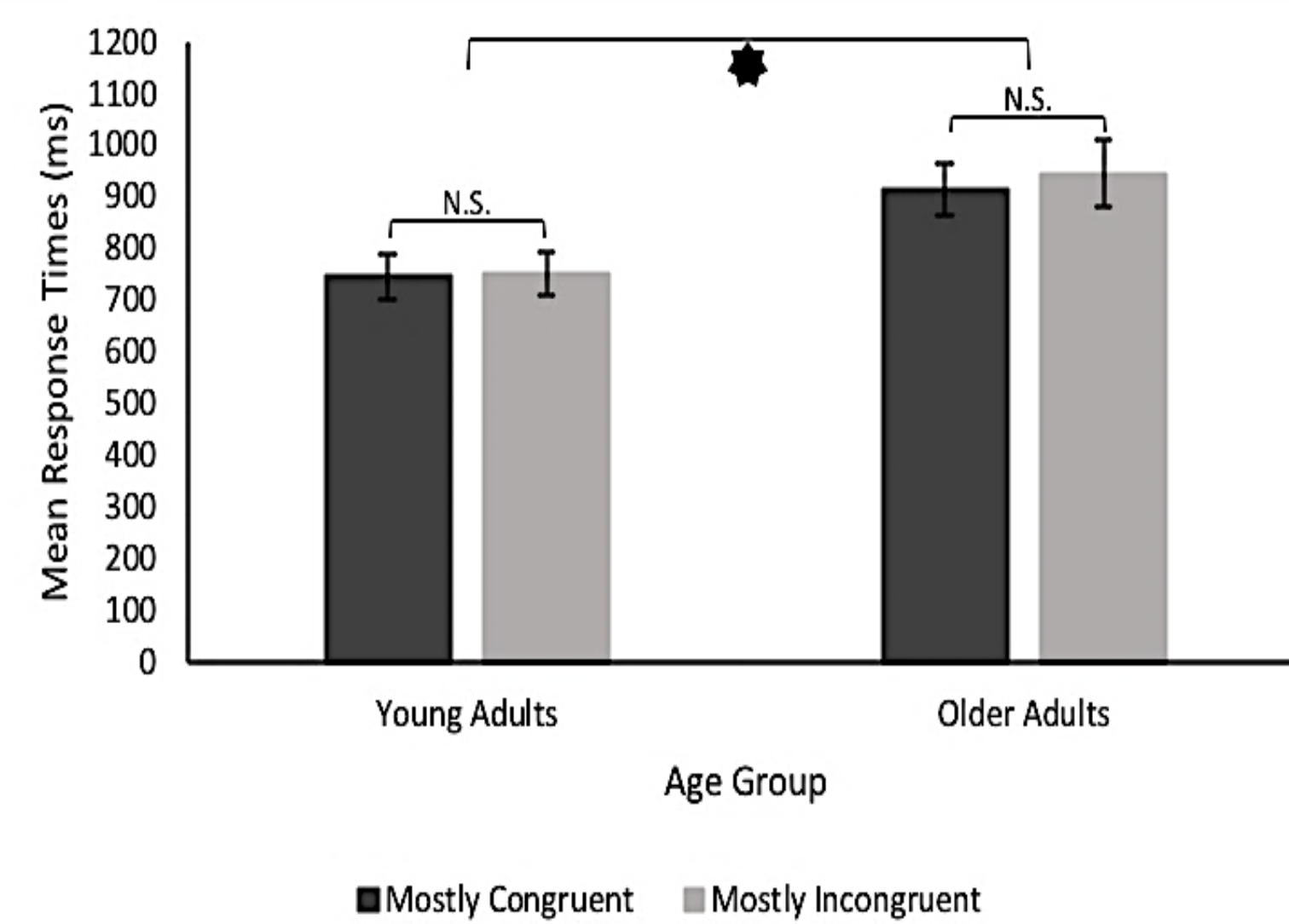
## Background

- **Braver (2012)** has argued that cognitive control reflects 2 dynamically changing biases
  - Forward-looking maintenance of task-related information—*proactive control*
  - Exogenously driven reactivation of task-related information—*reactive control*
- **Gonthier, Braver, & Bugg (2016)** suggested that *congruency costs*, slowed response for congruent trials embedded in a block of mostly incongruent trials vs mostly congruent trials as a measure of proactive control.
- **Kiyonga & Egner (2014)** have developed an internal Stroop variant where participants must respond to the color of a patch (e.g., RED) while holding a color name active in working memory (e.g., Green).
- We modified the Internal Stroop task to be amenable to assessing age-related congruency costs.

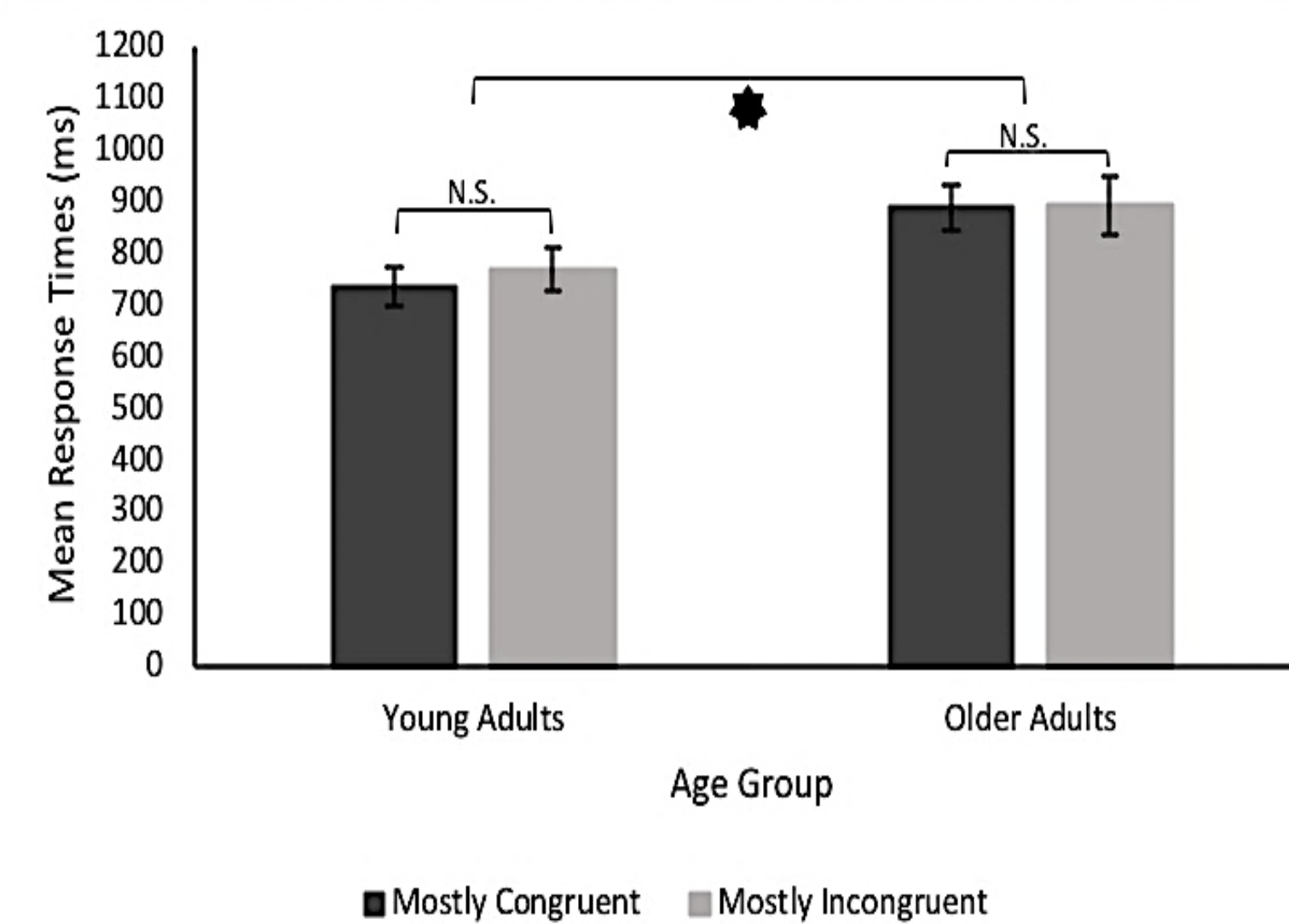
*Research Question: Will younger and older adults exhibit similar cognitive control during performance of a modified Internal Stroop task?*



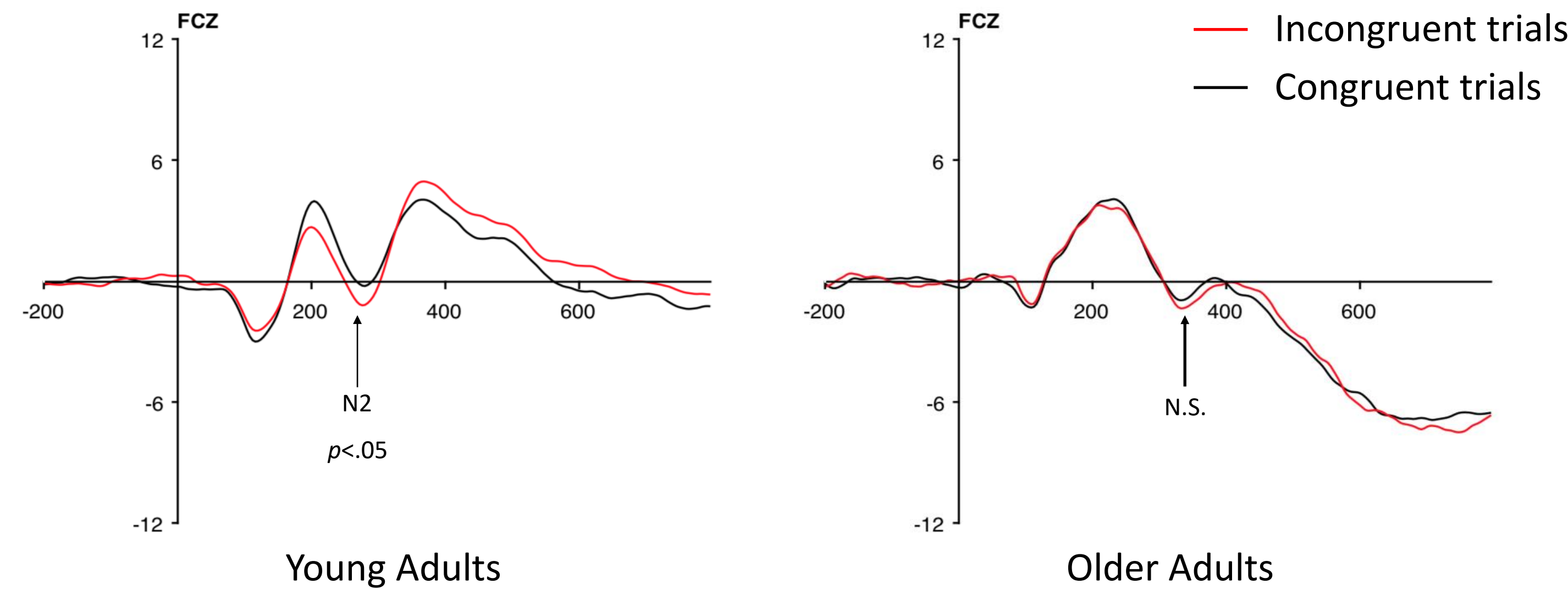
### No Congruency Costs For Either Group (Unbiased Items)



### No Congruency Costs For Either Group (Biased Items)



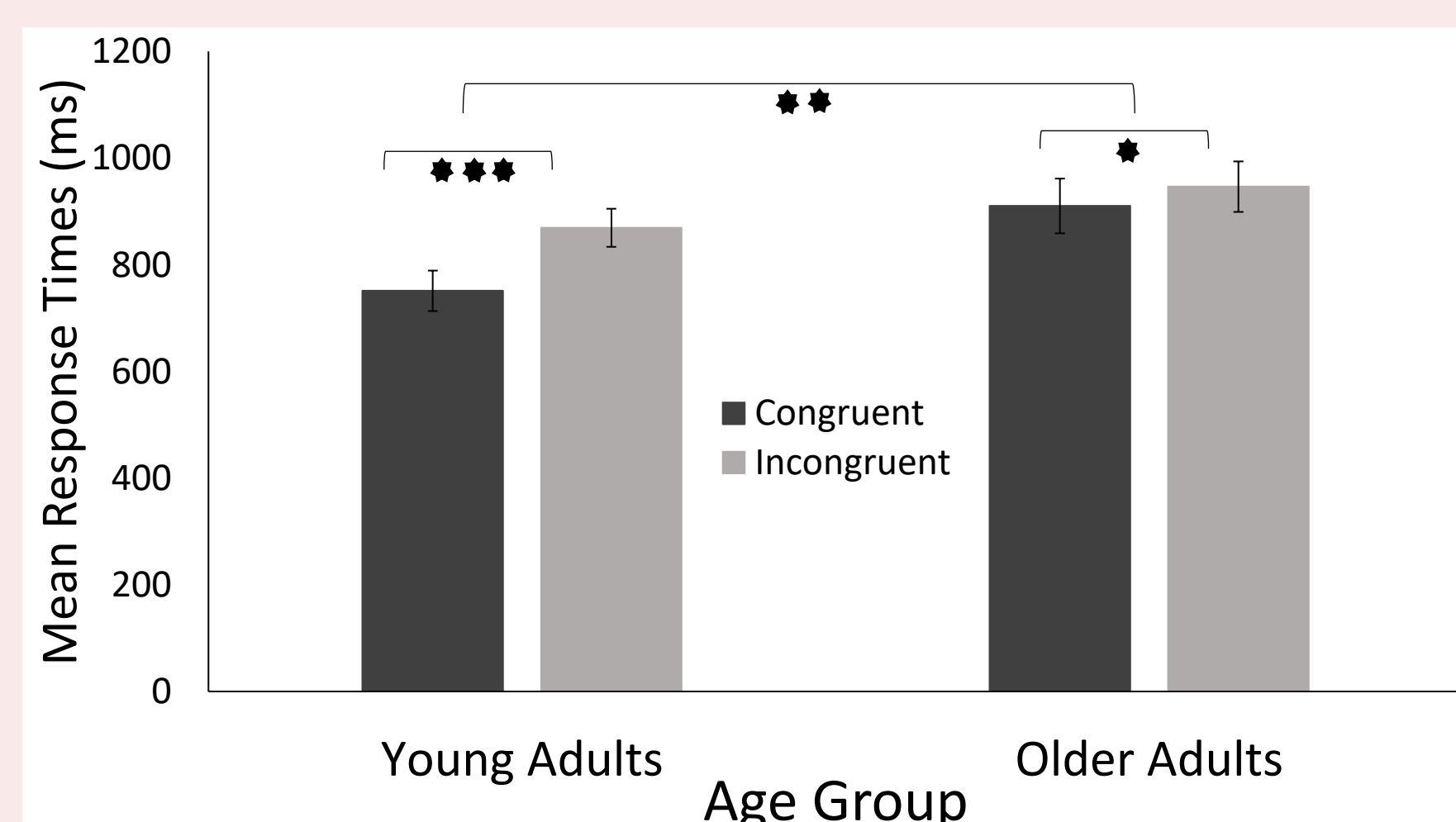
### N2-like ERP for Young But Not Older (Similar to a Flanker Task)



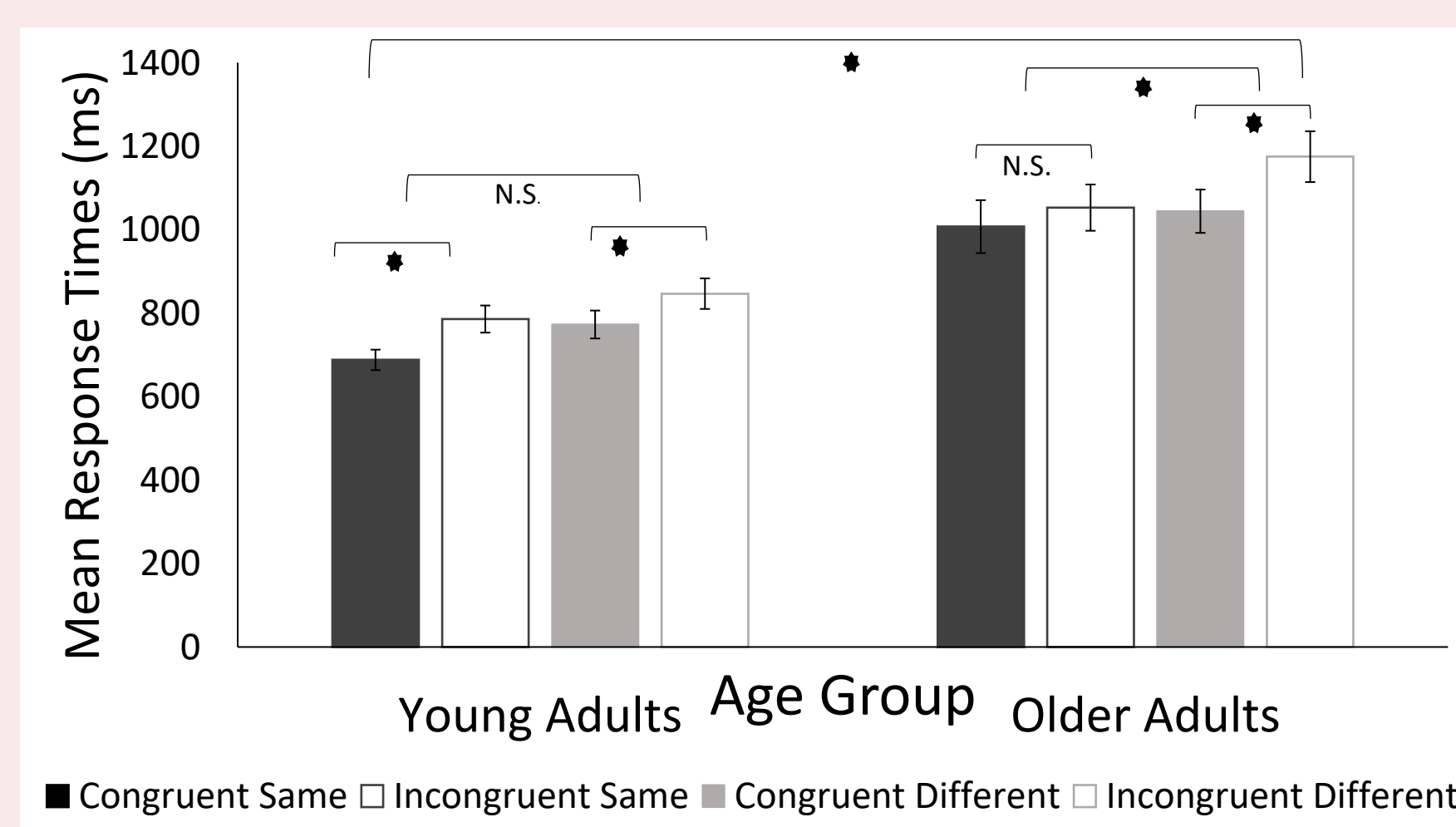
### Participants & Procedure

- Young: Mage= 19.1, SD= 1.8
- Older: Mage= 67.3, 6.1
- Participants completed 144 trials of each block type
- Block type counterbalanced

### Age-Related Reduction in Internal Stroop Interference



### Age-Related Differences in Slowed Word Recognition Following an Incongruent Color Patch



### Results & Discussion

- \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ , N.S.  $p > .05$
- **Results:** Older adults exhibited significantly less Internal Stroop interference than Young
  - 80%+ target word recognition by all participants
  - Slowed lure word rejection for both groups following an incongruent color patch
  - Slowed target word recognition for Young (but not Older) following an incongruent color patch
  - No Congruency Costs (congruent trials) for either group for biased items or for unbiased items
  - Young, but not Older, exhibited an N2-like ERP difference for congruent vs incongruent trials
- **Implications**
  - Internal Stroop task may not be conducive to proactive control
  - The reduced patch interference on subsequent word recognition goes opposite to the idea of age-related declines in WM control
  - Age-related reduction in Internal Stroop interference is counter to the idea of age-related increases
  - The lack of an N2-like ERP effect in Older suggests less reactive control on this task

#### References

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