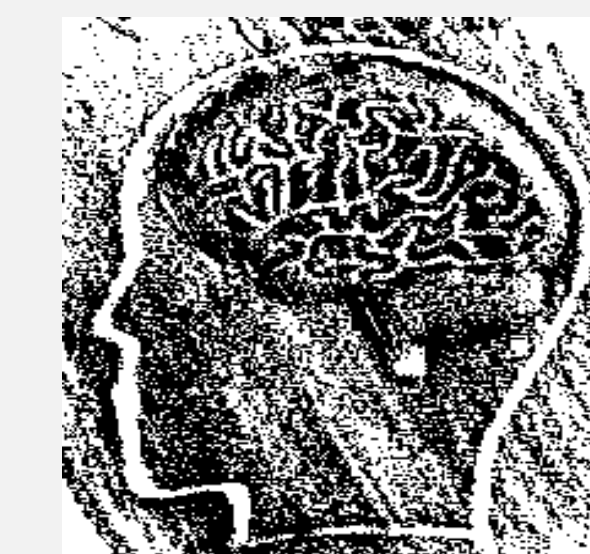


Manipulation of Inter-Pair Presentation Gap in Younger and Older Adults: Testing Predictions from Hyper-Binding and the Associative Deficit Hypothesis

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BACKGROUND

Associative Deficit Hypothesis (ADH): Older adult deficit in associative memory compared to younger adults is due to reduced ability to bind information at encoding and retrieve these bound units when necessary. (Naveh-Benjamin, 2000).

Hyper-binding: The associative deficit is caused by older adults binding too much information, weakening memory trace for the correct association (Campbell, Hasher, & Thomas, 2010).

• Campbell, Trelle, and Hasher (2013) demonstrated increased false alarms for older adults, but not younger adults, when recombined pairs on an associative test were comprised of words that appeared near one another at study, indicating inappropriate associations being formed across time.

• If previous pairs are given time to leave WM before presentation of new pairs, hyper-binding would predict no difference in false-alarms between near and far recombinations in older adults.

• Alternatively, the ADH would predict that the increase in false alarms is due to a failure of older adults' temporal binding causing near pairs to be harder to distinguish, meaning an increase in inter-item time would not mitigate the greater false-alarm rate for near recombinations.

Purpose: To test between differing predictions from the ADH and hyper-binding hypothesis when inter-pair presentation time is manipulated.

METHODS

49 younger adults (26 female), 34 older adults (24 female)

Study Phase:

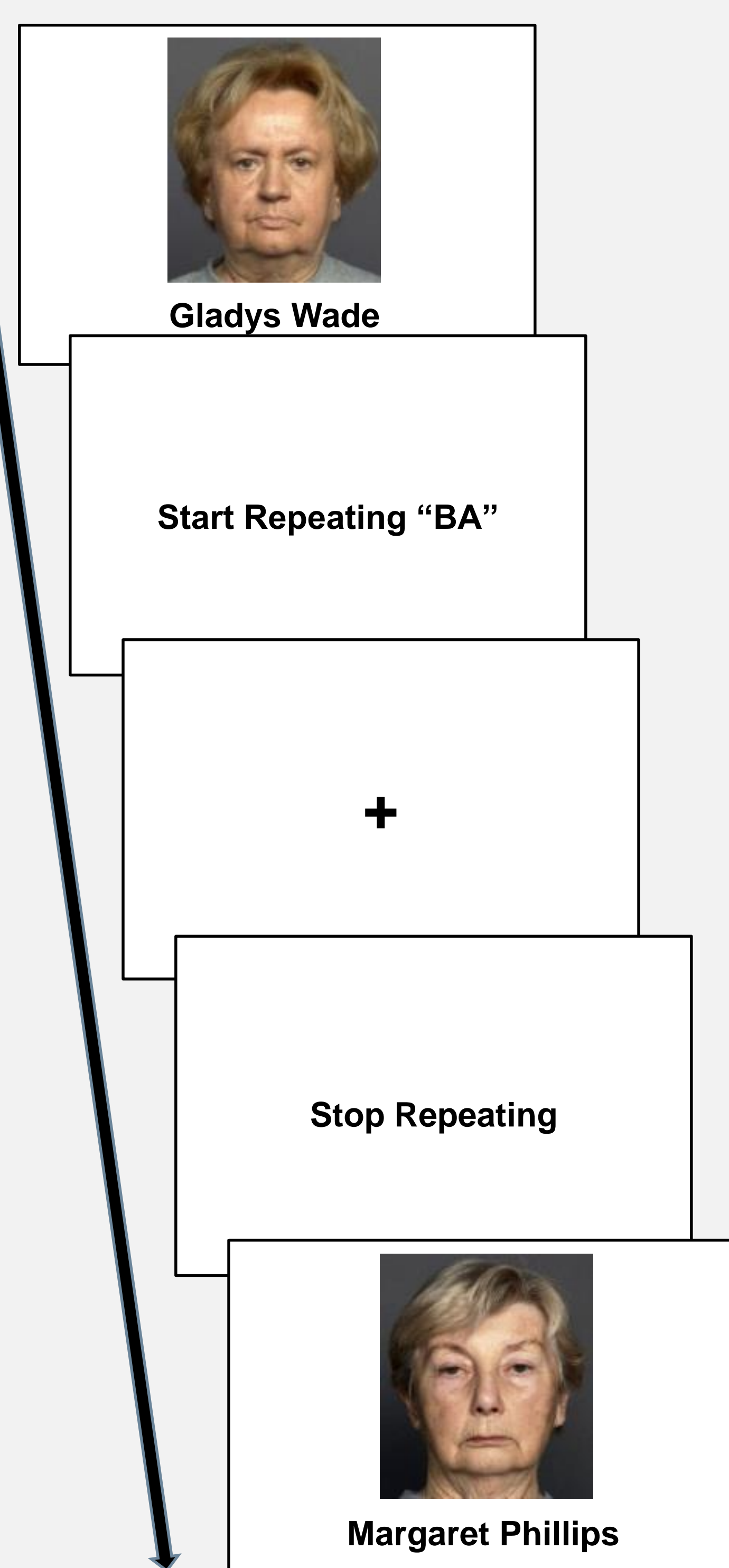
- Six study lists of 28 face-name pairs each, in three different conditions:
 - No-Interval - 500 ms between study pairs.
 - Medium-Interval – 4,000 ms between study pairs, with articulatory suppression.
 - Long-Interval – 8,000 ms between study pairs, with articulatory suppression.
- Study pairs presented for 6,500 ms each.

Test Phase:

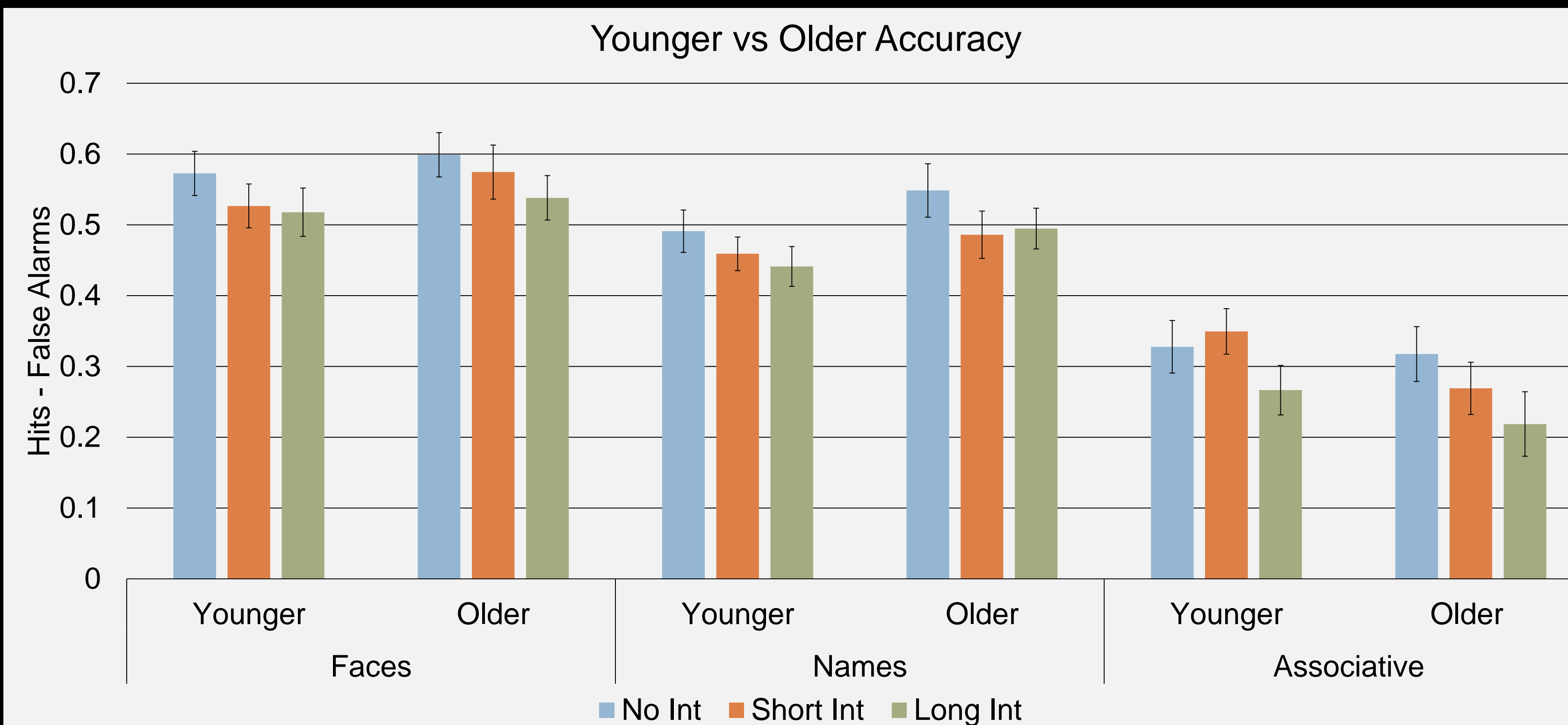
- Separate old vs new item recognition tests for faces and names.
- Intact vs recombined pairs associative test.
 - Recombined pairs on associative test were either combined between pairs near each other (n+1) or far (n+12-13) during the study phase.

Analysis:

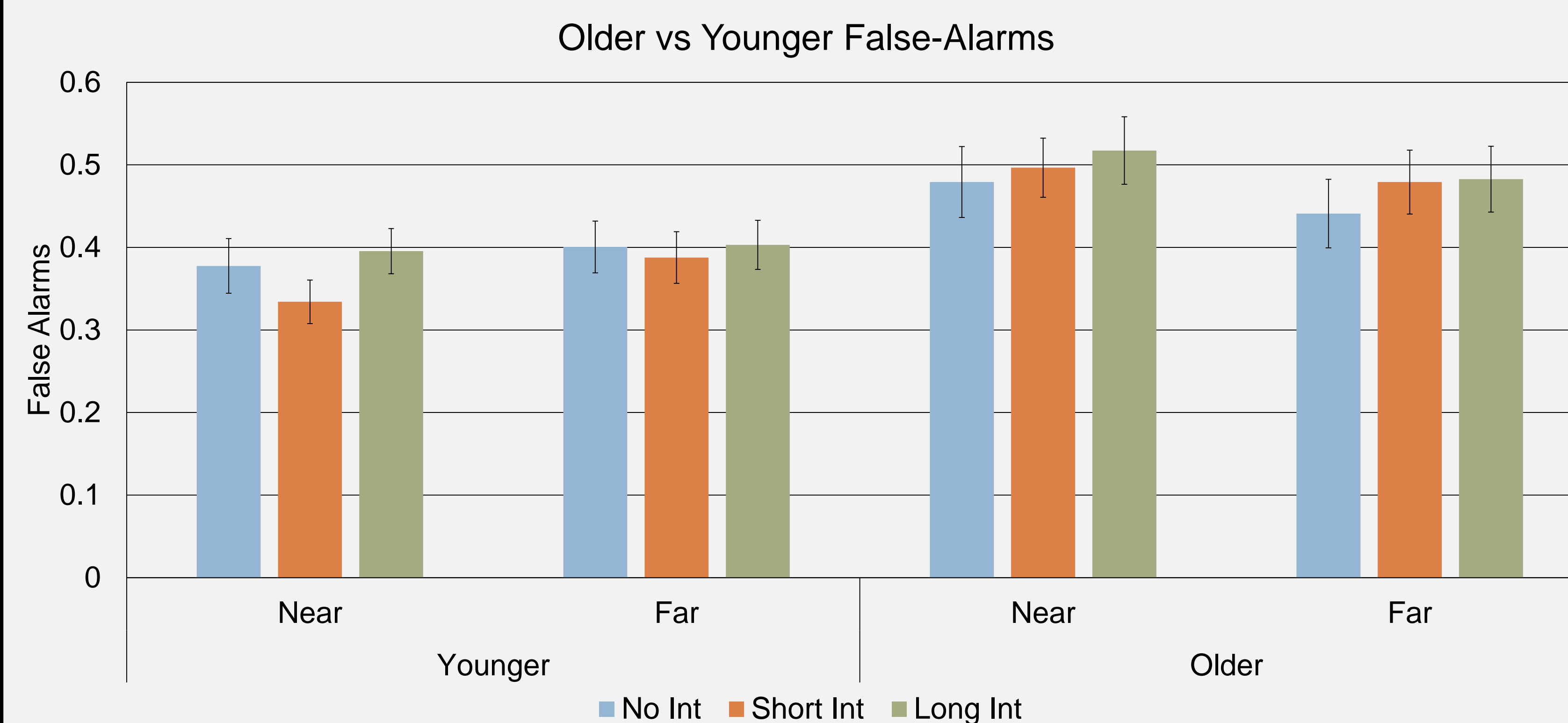
- Hits minus False-Alarms rates across conditions, test type, and age group.
- False-Alarm rates for recombined pairs across conditions, test type, and age group.



RESULTS



Analysis of overall performance showed a significant effect of inter-item interval, test type, and an age by test interaction.



Analysis of false alarms in the associative test showed a significant effect of age group, but no inter-item interval effect, or age by inter-item interval interaction effect.

CONCLUSIONS

- We were unable to replicate the hyper-binding across time effect. This is potentially explained by new research showing that hyper-binding is evident in implicit memory tasks only (Campbell and Hasher, in press) whereas we used an explicit memory task.
- We were able to show evidence of an associative deficit, in spite of not being able to show evidence for hyper-binding across time, this provides evidence against hyper-binding across time as a major factor in the associative deficit.

REFERENCES

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