Investigation of visual and verbal inhibition in aging within a similarity-judgement task

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BACKGROUND

Aging has been associated with reduced inhibitory abilities, which normally allow us to focus on target stimuli and ignore others. However, data are contradictory as regards the domain-specificity or generality of this decline. This study aimed to conduct a comprehensive assessment of inhibitory abilities in aging by focusing on visual and verbal domains (phonological and semantic modalities) within a similarity judgment task across phonological, semantic and visual modalities.

PARTICIPANTS

30 Young adults

≈ 21,23 years old

Education
> ***

Vocabulary (Mill-Hill)
=

Processing speed
> ***

28 Older adults

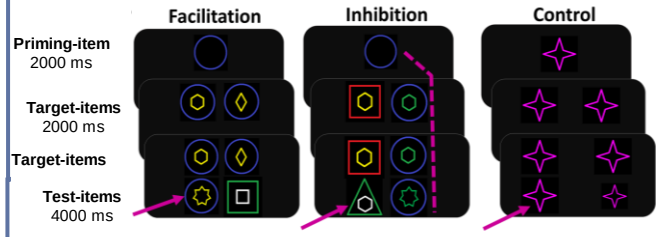
≈ 69,54 years old
MoCA > 23

*** $p < .001$

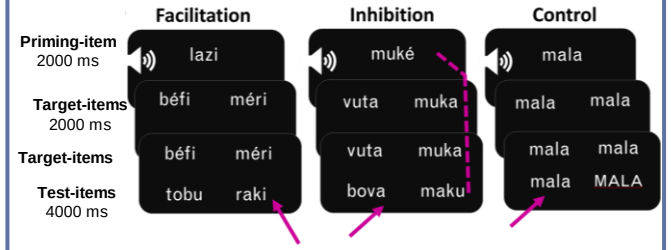
SIMILARITY-JUDGEMENT TASK

"Which of the items at the lower part of the screen shows the best match with both of the items at the upper part of the screen?"

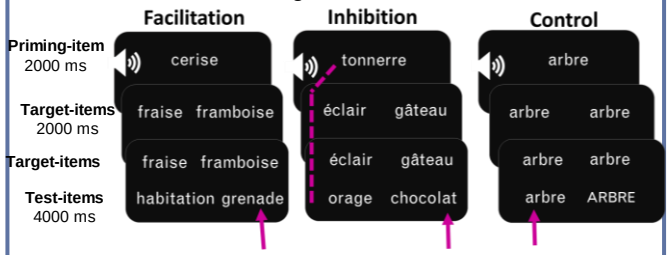
Visual Matching criteria: form & color



Phonological Matching criteria: phonemes & position



Semantic Matching criteria: semantic association



→ Correct response

Facilitation – Correct item to select was primed

Inhibition – Wrong item-test primed which needs to be inhibited for correct response selection

Control – Correct test-item to select strictly identical to target and priming items.

CONCLUSIONS

Elderly people had overall more difficulties in inhibiting wrongly cued items, both in terms of response accuracy and response times.

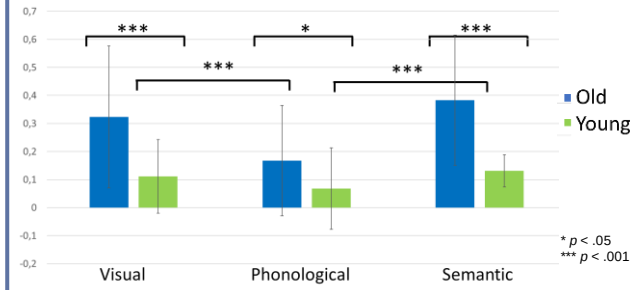
These results are in line with an age-related decline in inhibitory capacities.

This decline appears to be domain-general. The lower age effect for the phonological modality may be due to an overall lower impact of the inhibition manipulation.

RESULTS

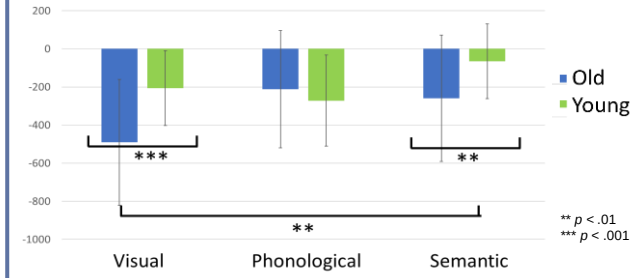
Interference Score (IS) = Facilitation - Inhibition

IS - Accuracy



- **Older** > **Young** in the three modalities.
- Lower IS for phonological vs. visual and semantic modalities

IS - Reaction times



- **Older** > **Young** for the visual and semantic modalities.
- Larger IS for visual vs. semantic modalities.

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