



Examining cognitive training and executive function in older adults

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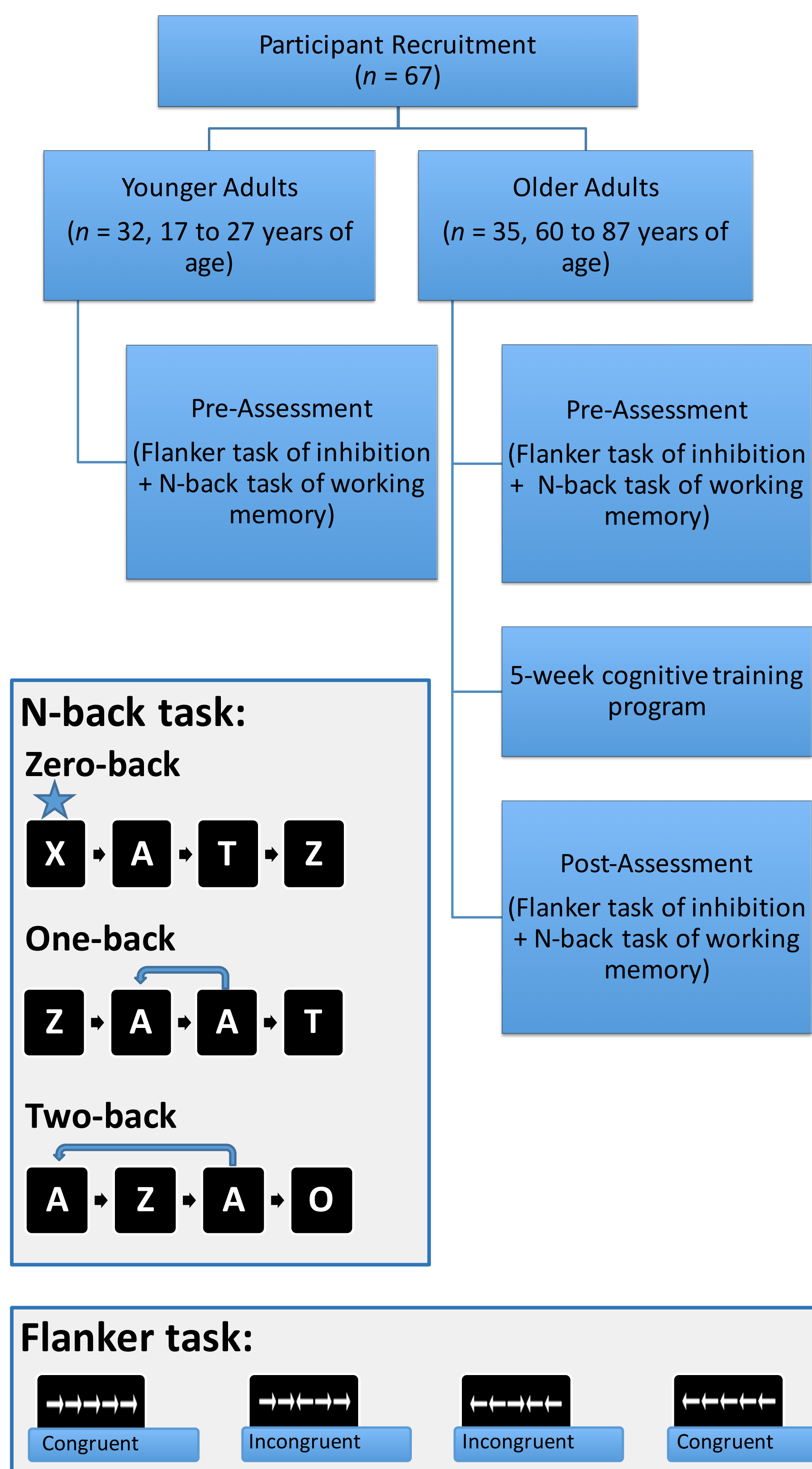
INTRODUCTION

- Studies have shown that cognitive functions decline with increasing age^{1,2}.
- As the population of older adults (OA) grows, interest in cognitive training programs is steadily expanding.

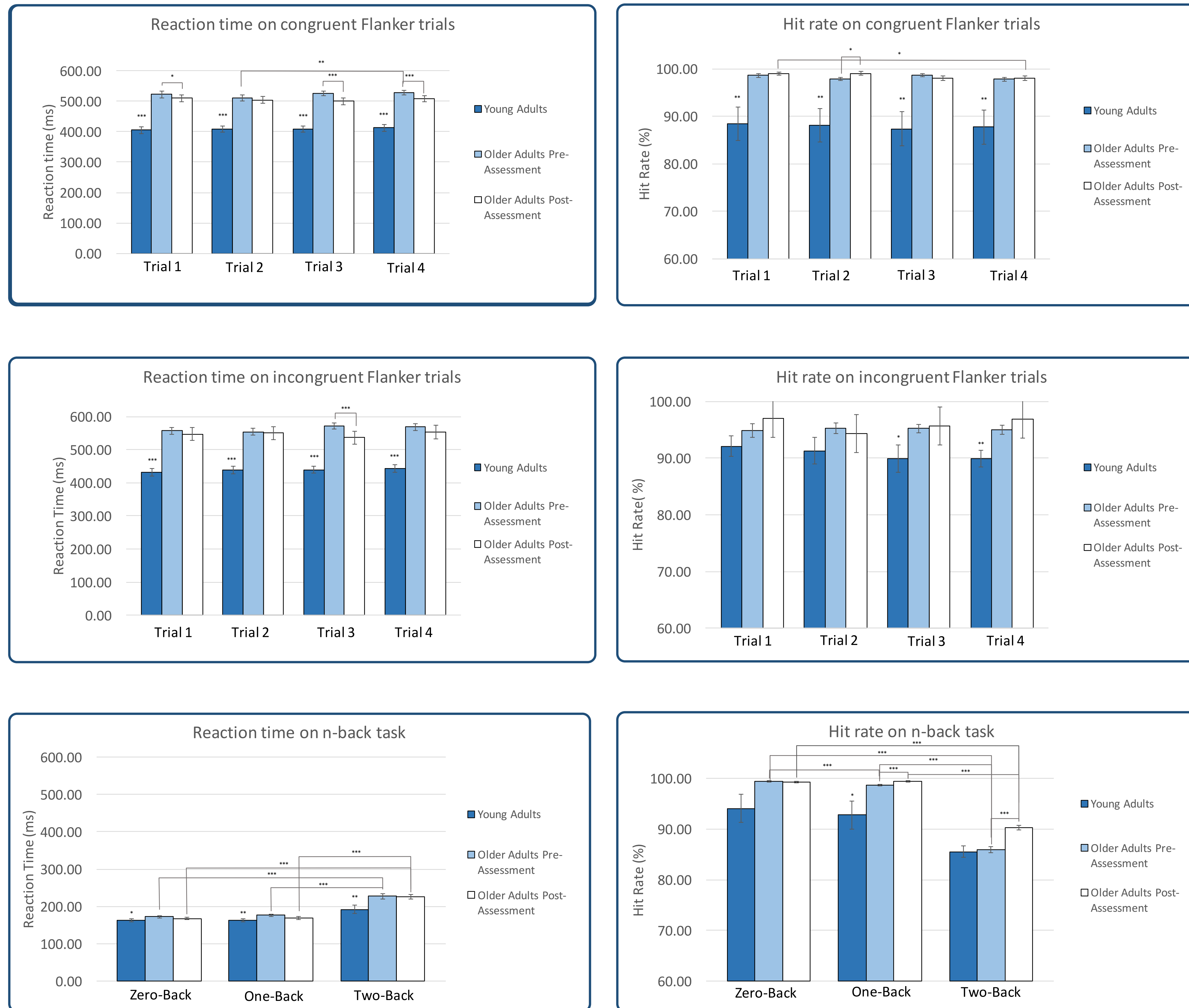
OBJECTIVE

We sought to investigate whether cognitive training programs can lead to improvements in the performance of OA on measures of working memory and inhibition.

METHODS



RESULTS



- Repeated measures analysis of variance indicated a reduction of pre- and post-training reaction time (RT) for the Flanker task. There was no post-training change in RT on the N-back task. YA consistently presented significantly quicker RT in comparison with OA at baseline.
- OA hit rates did not change significantly on the Flanker task between each assessment, however they showed an increase in the N-back task. YA hit rates were significantly different than OA results at baseline for the congruent Flanker task only.
- In both tasks, OA and YA hit rates and RT were significantly different, with YA demonstrating lower RT and accuracy compared to OA.

DISCUSSION

- Our results supported our initial hypothesis that cognitive training may explain improvements in executive functions.
- While our results do not indicate a causal link between cognitive training and executive function enhancement, they provide evidence justifying further investigation.
- Possible limitations include the sample composition: YA exclusively included university students and OA were self-selected and high performing at baseline.

CONCLUSION

- Follow-up studies will determine whether other factors can also lead to improvement.
- Determining whether cognitive training programs can improve cognitive performance in older adults can help determine the potential of such approaches to prevent or rehabilitate age-related cognitive decline.

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BIBLIOGRAPHY

¹Chapman, S. B., Aslan, S., Spence, J. S., Keebler, M. W., DeFina, L. F., Didehban, N., . . . D'Esposito, M. (2016). Distinct Brain and Behavioral Benefits from Cognitive vs. Physical Training: A Randomized Trial in Aging Adults. *Frontiers in Human Neuroscience*. doi:10.3389/fnhum.2016.00338

²Stephens, J. A., & Berryhill, M. E. (2016). Older Adults Improve on Everyday Tasks after Working Memory Training and Neurostimulation. *Brain Stimulation*, 11(2). doi:https://doi.org/10.1016/j.brs.2016.04.001