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Effects of Aging, Sex and Forgetfulness on Mental Rotation Performance

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Abstract Text:

Background: There is growing interest in the development screening tests for AD and MCI that focus on non-amnesic symptoms. Moreover, evidence suggests that declining mental rotation ability can be associated with prodromal Alzheimer's Disease (AD) and Mild Cognitive Impairment (MCI). Additional studies in healthy aging adults are therefore needed to determine whether computerized mental rotation tasks may prove useful in predicting cognitive decline.

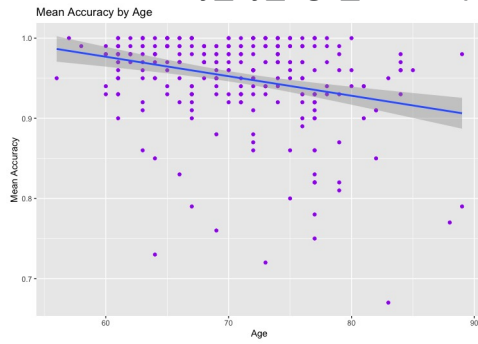
Method: Here, we report findings from a large group of aging adults (n=276, 42% female, aged 56-89 years, M=70.5) who were remotely administered a computerized mental rotation task as part of a larger California Cognitive Assessment Battery (CCAB). During the mental rotation task, participants had to decide as quickly as possible whether a presented letter was in its typical (e.g., R) versus mirror-reversed (Я) orientation. Letters were presented either upright (at 0 degrees) or rotated (+/-60, or +/-120 degrees). Participants' responses on the Cognitive Failures Questionnaire were also collected as part of the assessment battery.

Result: Response times (RT) and accuracy on the mental rotation task were captured and analyzed to determine whether any effects of age, sex, and rotation angle could be observed using this remotely administered mental rotation task. Analysis revealed that both age and sex were significantly associated with performance measures on this task. The expected pattern of longer response times with greater degree of stimulus rotation was also observed. Analysis of sex differences revealed greater accuracy overall by females, while males experienced smaller RT costs based on rotation angle. Finally, a significant relationship between forgetting scores and mental rotation response times was also observed.

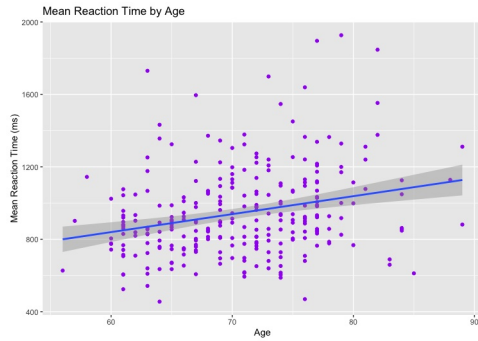
Conclusion: Increased age and forgetting scores were both associated with worse mental rotation performance. Continuing longitudinal assessment at 6-month intervals is ongoing and will further establish trends in mental rotation performance during aging.

Tables and Figures:

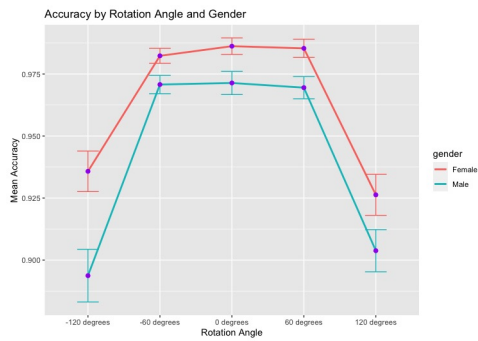
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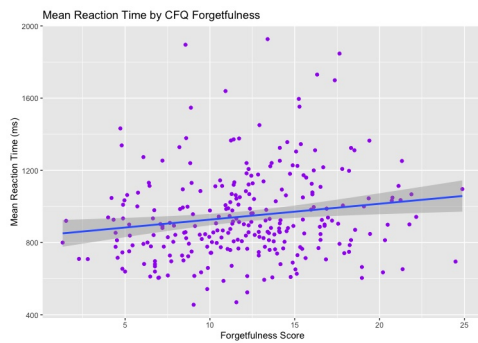
2-RT_by_Age_scatter.jpg (79.0KB)



3-Accuracy_by_RotAngle_and_Sex.png (164.6KB)



4-RT_by_CFQ_scatter.jpg (87.6KB)



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Effects of Aging, Sex and Forgetfulness on Mental Rotation Performance

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No

Abstract Submission Affirmations:

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Yes

Theme:

Clinical Manifestations

Topic:

Neuropsychology

Sub Topic:

Computerized neuropsychological assessment

Learning Objectives:

Describe how mental rotation performance is associated with age, sex, and self-reported forgetfulness

Recognize the utility of computerized cognitive tests that can be remotely administered

Discuss sex differences in mental rotation ability

Keywords:

clinical assessment, cognition and perception

Fellowship:

No.

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Signed on 01/20/2022 by *Krista Schendel*

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