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INTRODUCTION

Background:

- More than 5'000 new patients/year with post-stroke executive deficits in Switzerland^{1,2}
- Limited relevance of neuropsychological testing of executive deficits for everyday life³
- Lack of efficient screening instruments⁴

Hypothesis:

The tablet-based, adaptive serious video game ACE-X is a viable tool for screening executive deficits in stroke patients

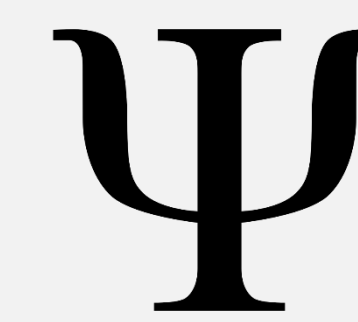
METHODS



n = 31
Neurorehab.
inpatients



ACE-X Testing
Duration: 20 min



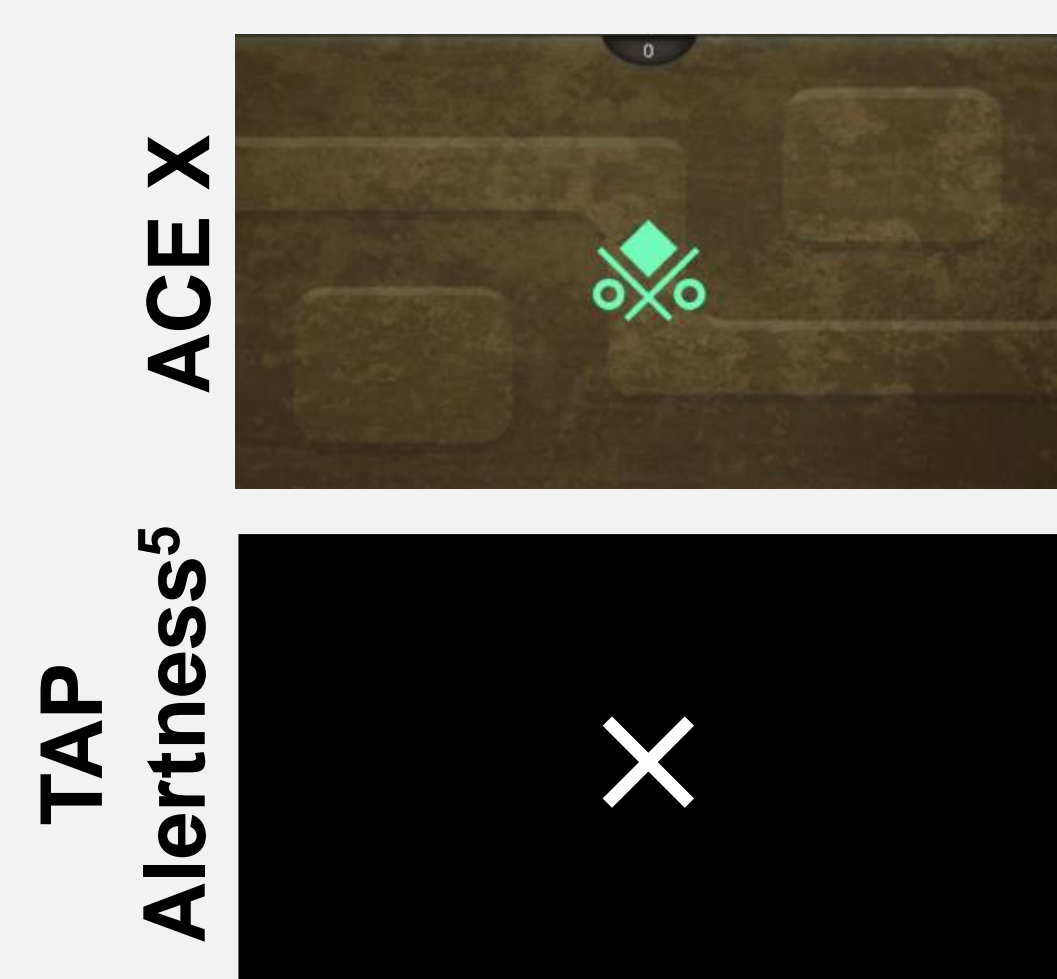
Comparison
with neuropsy.
Tests

Age ≥ 18 years
Unilateral ischemic or
hemorrhagic stroke

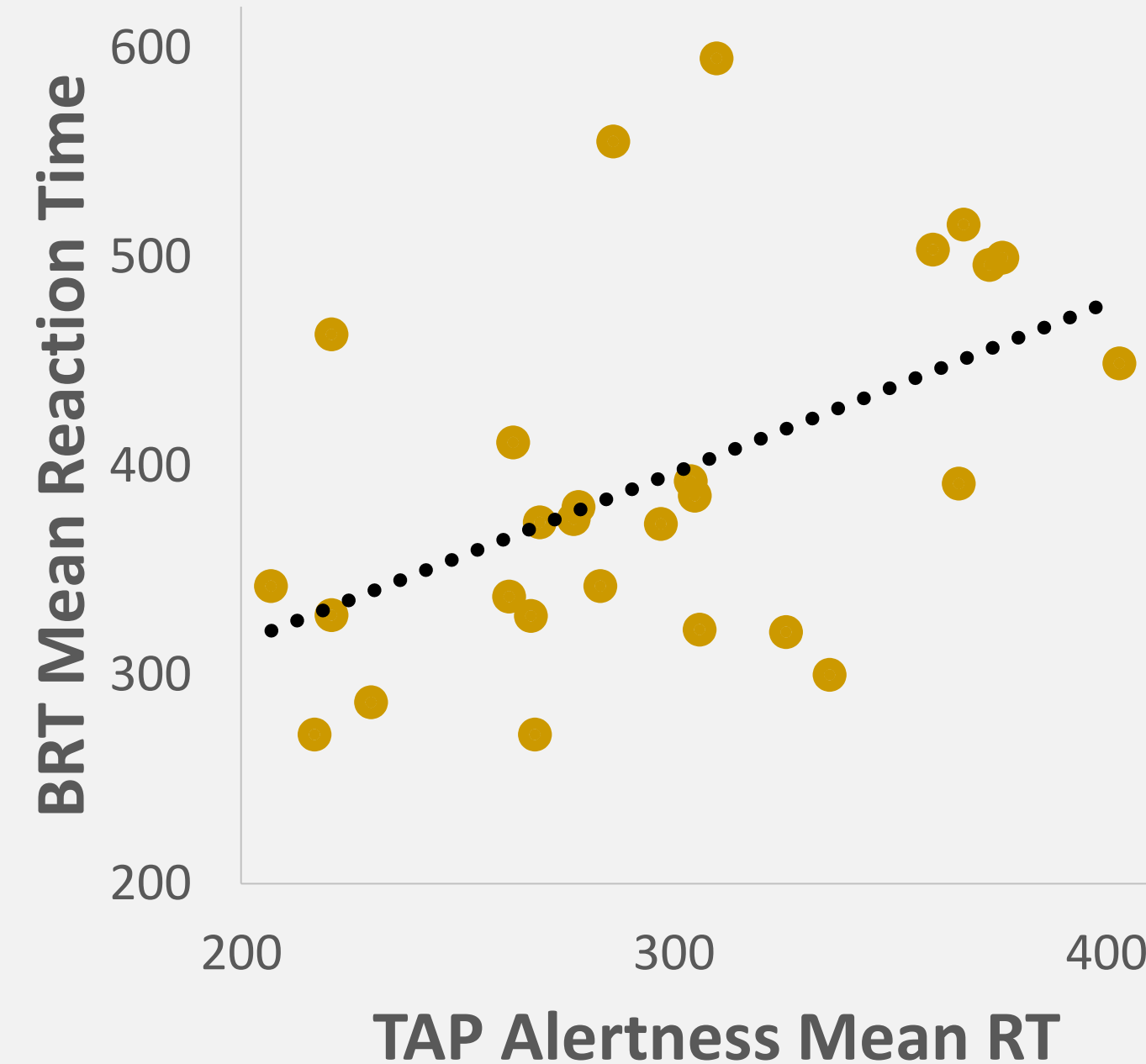
Inability to understand
or follow instructions
Inability to operate
tablet (visual/motor)

RESULTS

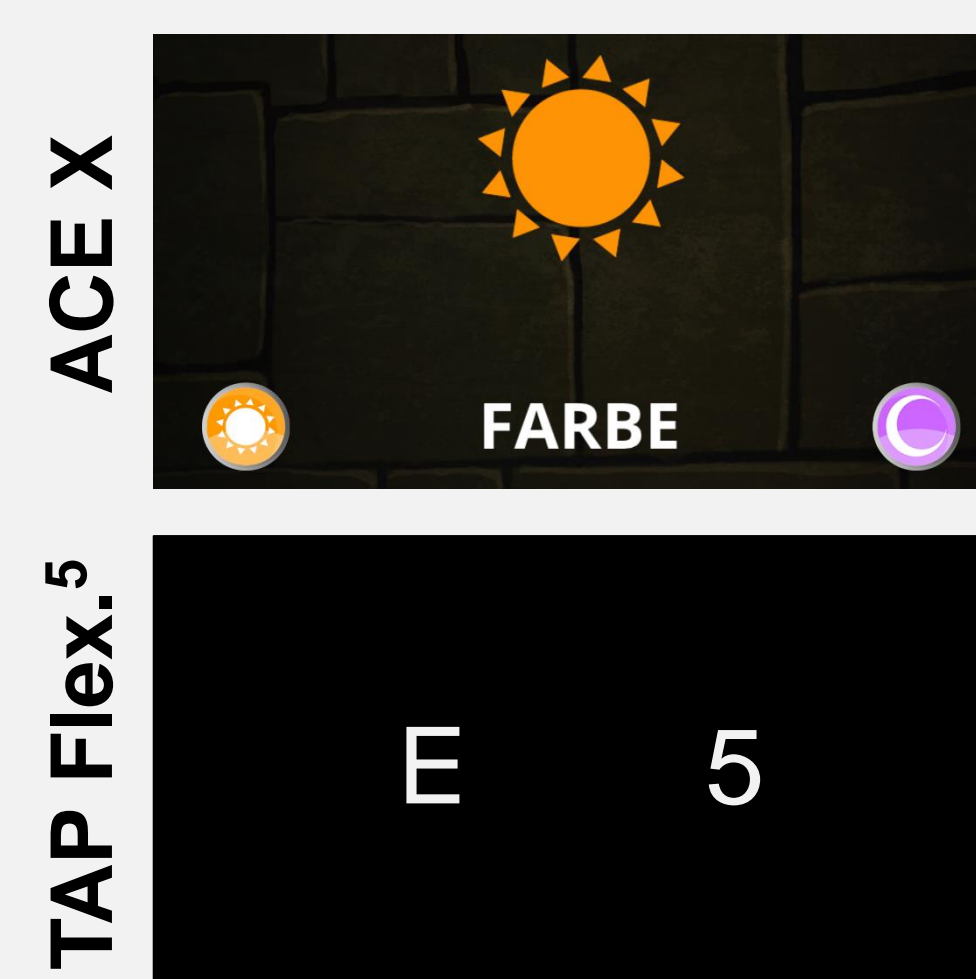
Alertness



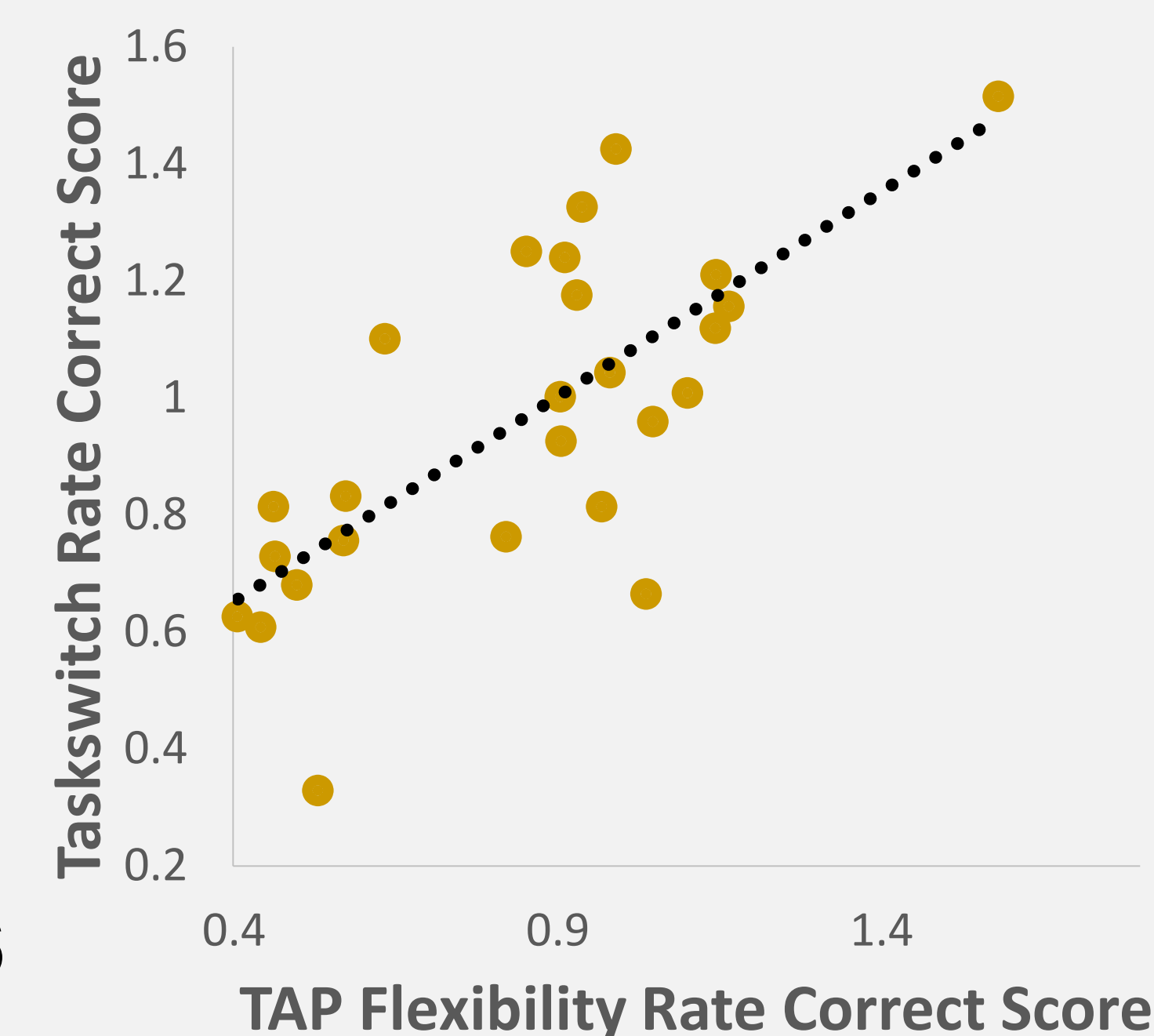
Spearman: $\rho = 0.497$
 $p = 0.008$



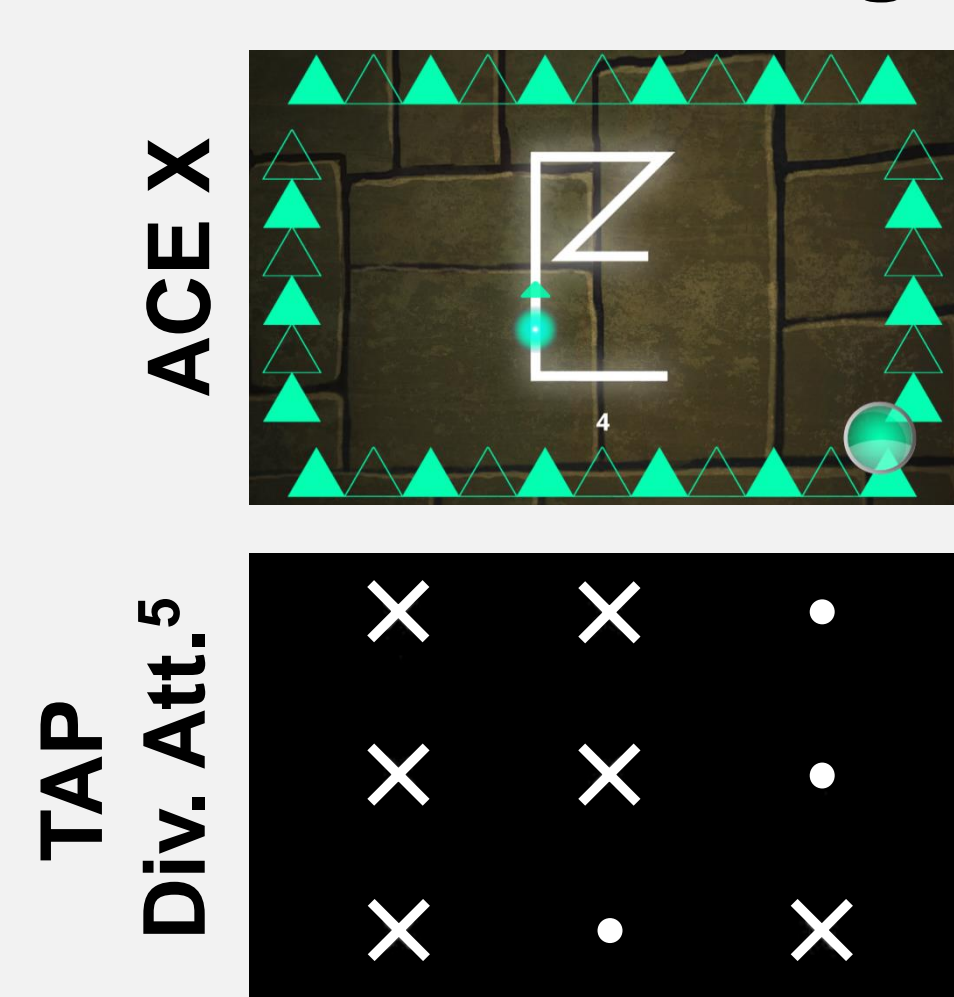
Cognitive Flexibility



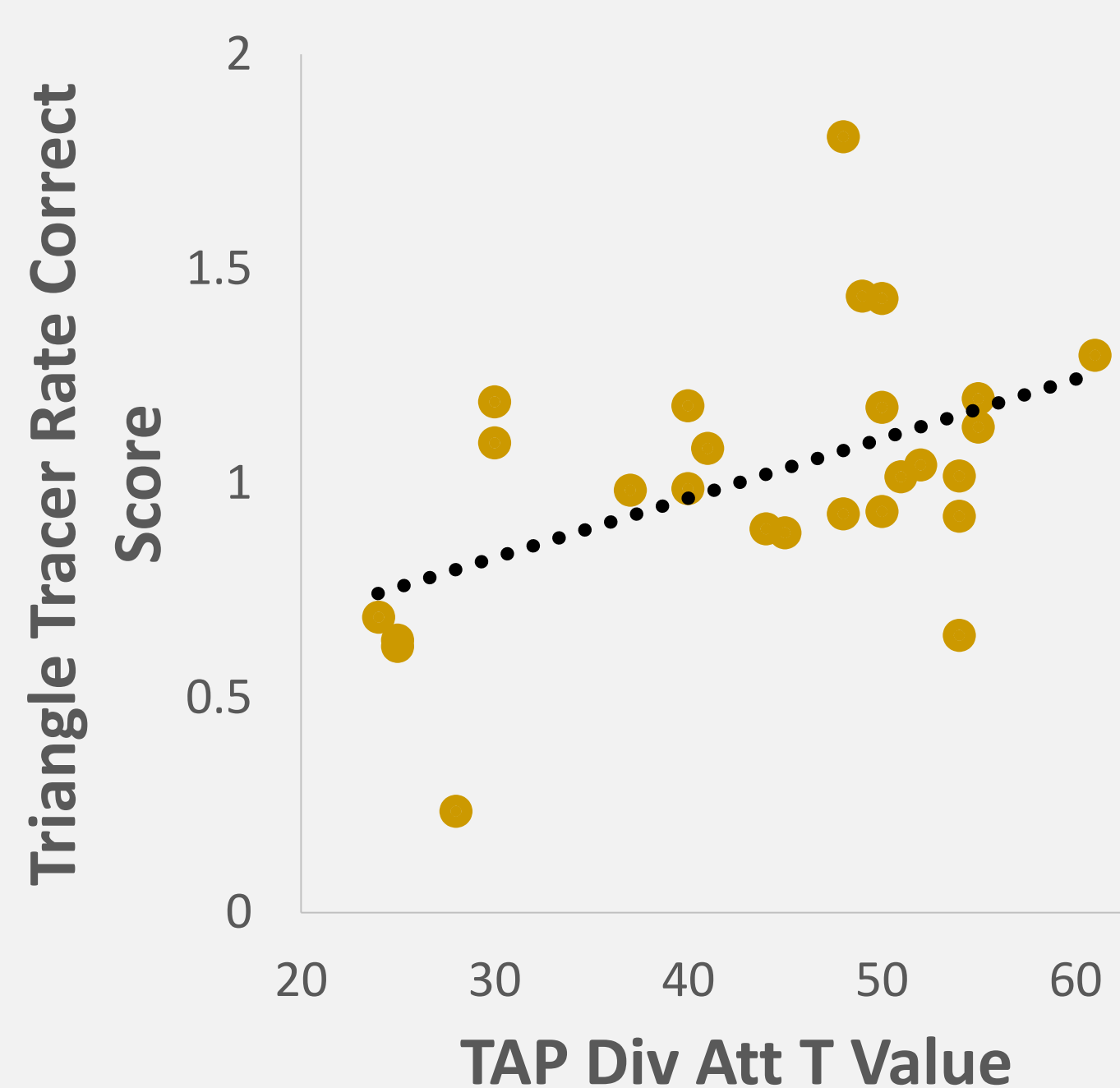
Spearman: $\rho = 0.716$
 $p < 0.001$



Multitasking



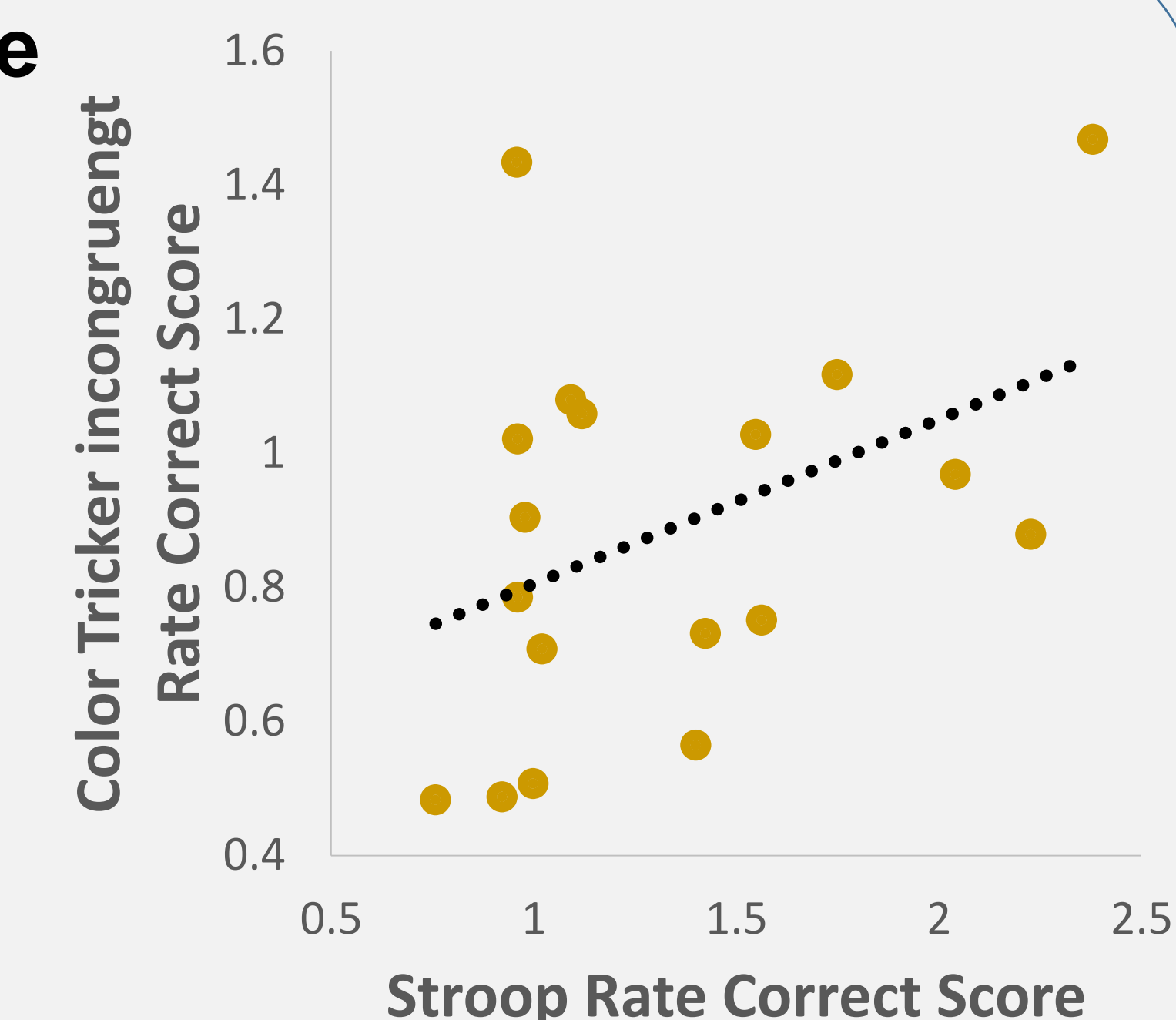
Spearman: $\rho = 0.408$
 $p = 0.038$



Cognitive Interference



Pearson: $r = 0.404$
 $p = 0.097$



DISCUSSION

Significant correlations:

- Alertness
- Cognitive Flexibility
- Multitasking

Trend in cognitive interference

No significant correlations for visuo-spatial working memory

Limitations:

- Varying time interval between tests
- Missing data (neuropsychological tests)
- Comparability (raw vs standardized data)

CONCLUSION:

- ACE-X may represent a valid screening battery for executive dysfunction in stroke patients
- Potentially remote testing for screening & monitoring of executive function, also in other conditions
- Follow-up studies for validation and assessment of the predictive value for everyday life function

References

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5. Test of attentional performance; Zimmermann & Fimm, *Applied Neuropsychology of Attention*, 2002
6. Delis-Kaplan Executive Function System subtest Stroop; Delis, Kaplan & Kramer, 2001