

Sex Differences in Visual Motion Perception

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Introduction

- Sex is an important biological factor in clinical research on neurological disorders^[2].
- Motivated by past research in Autism Spectrum Disorder (ASD), which is four times more prevalent in male than in female populations^[4], we examined whether there are any meaningful sex differences in visual motion perception in neurotypical (NT) adults.
- We extended a paradigm used in prior research^[3], while also investigating whether there is a correlation between motion processing and the number of autistic traits one possesses.

Methods

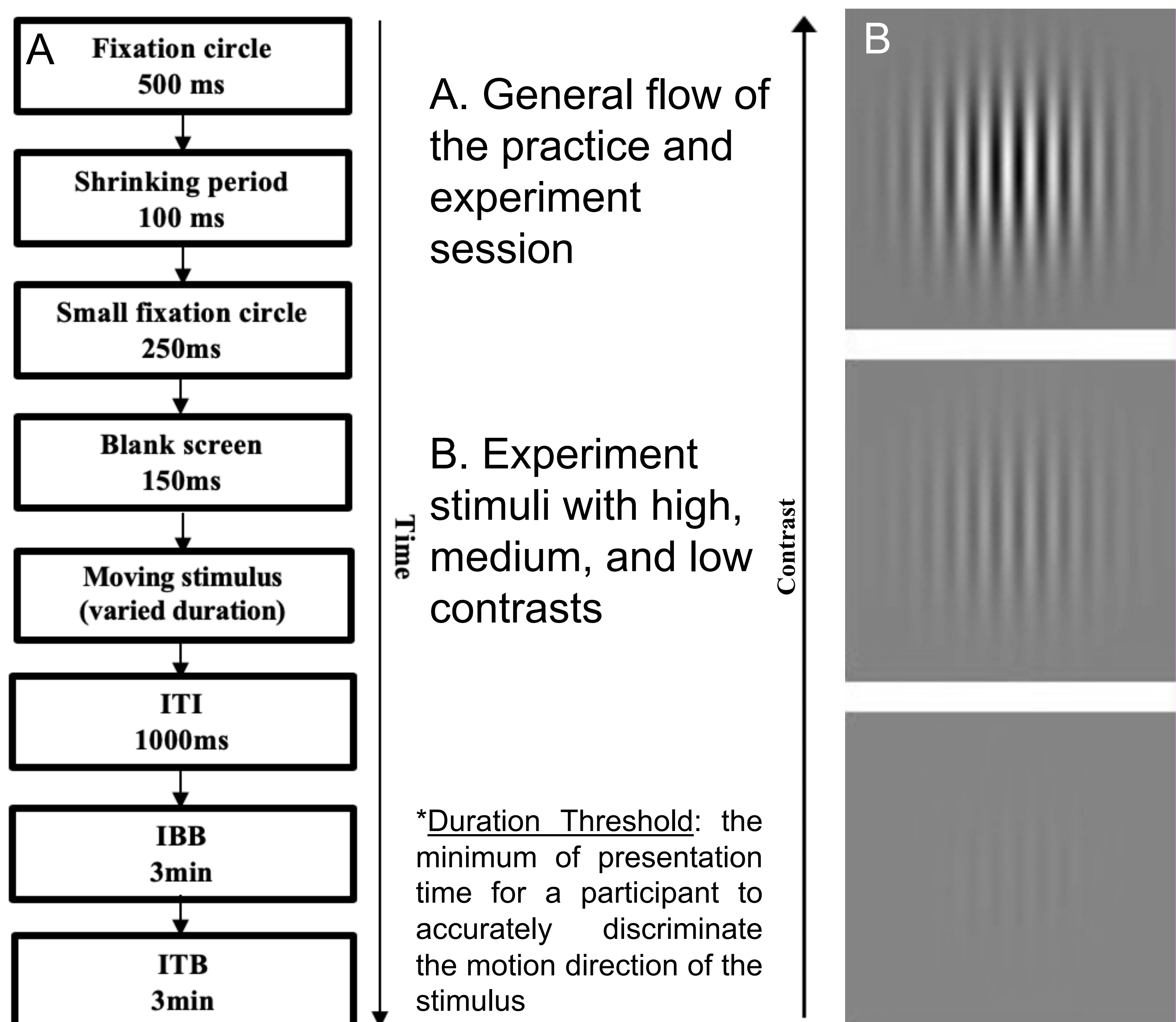
	Male	Female
Participants	20	20

Procedure: Session 1:

- Practice session (336 trials) of visual motion direction discrimination task
- Autism spectrum quotient (AQ) questionnaire^[1]

Session 2:

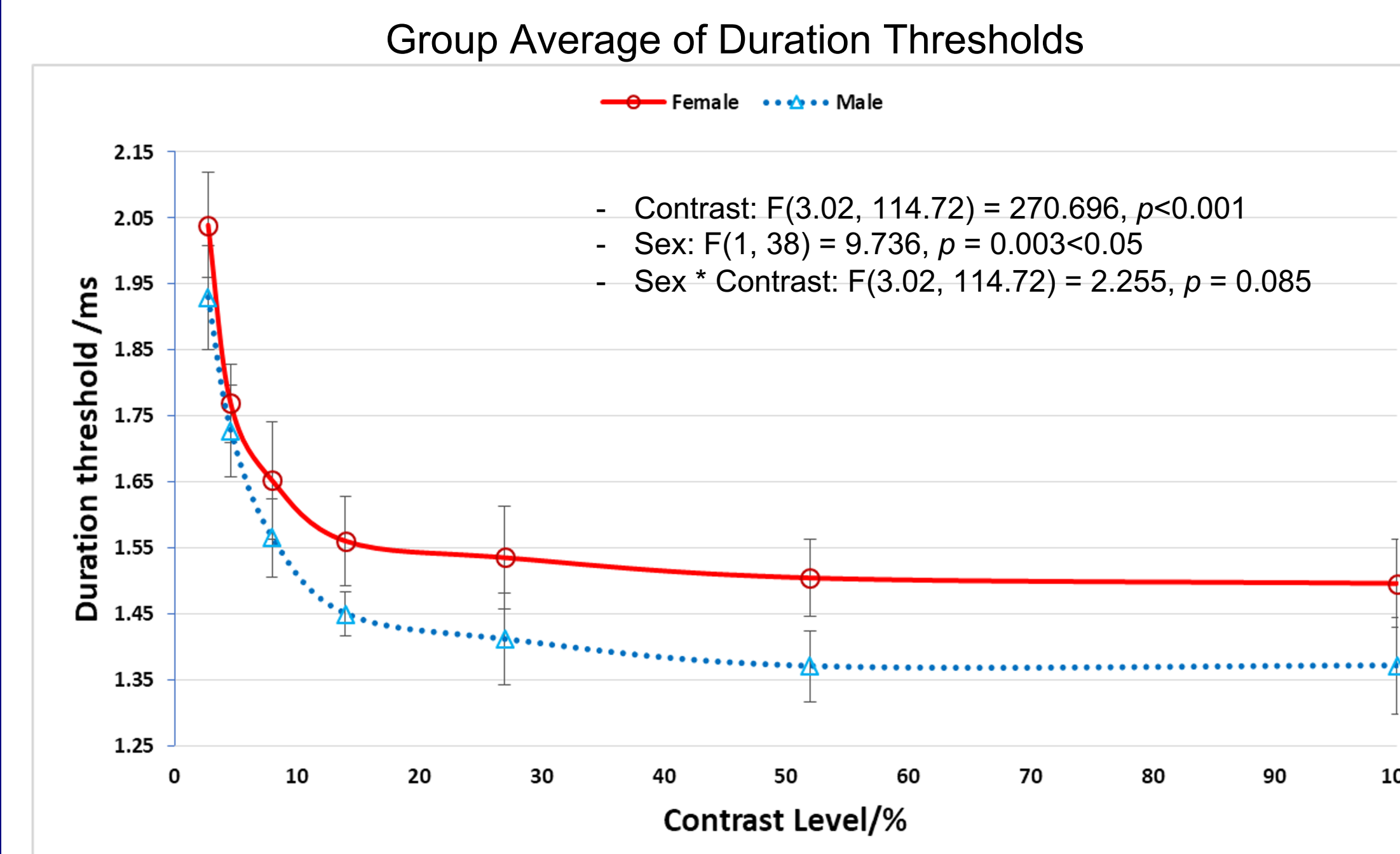
- Experiment session (924 trials)



Analysis & Results

1. Sex Difference in Motion Perception

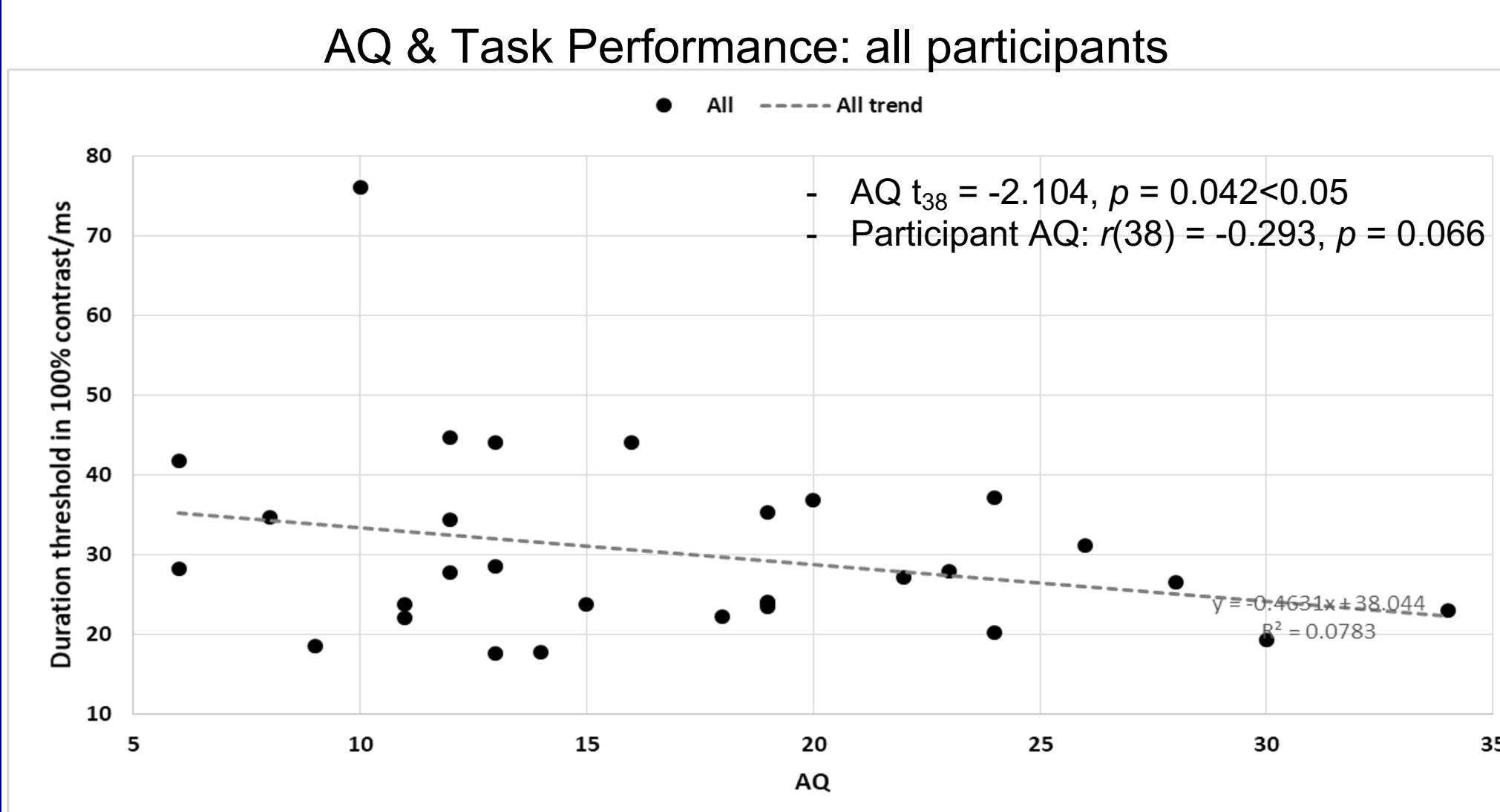
a. Male versus Female Differences in Visual Motion Processing



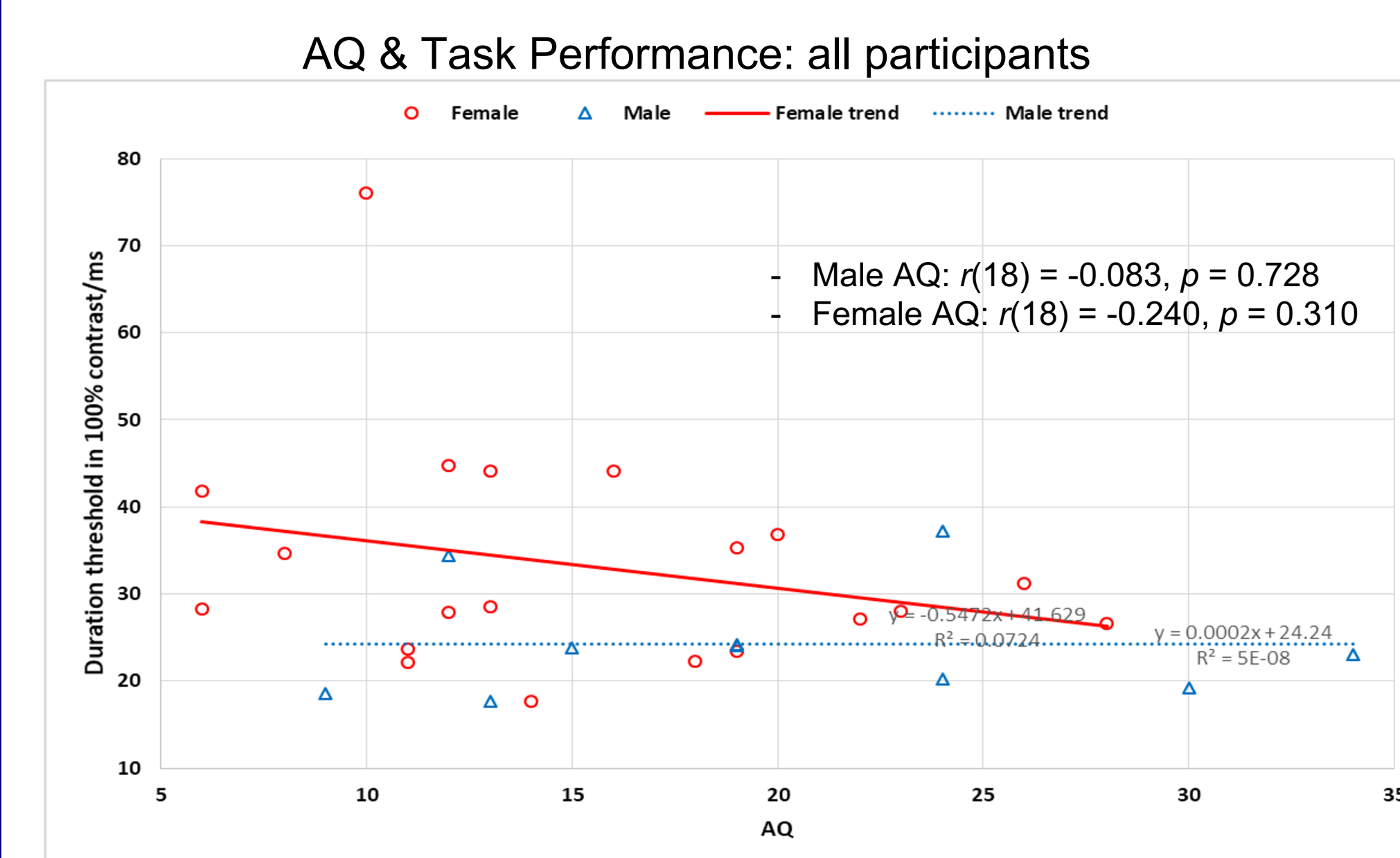
- Task performance improved with increasing contrast, but plateaued at high contrast.
- Both males and females showed improvement of task performance, but it was more notable for males.

2. Autism Traits and Task Performance

a. All Participants



b. Male versus Female



- On average, males had higher AQ than females.
- No significant correlation between individual's autism traits and best performance was found.

*Best Task Performance: represented by an individual's duration threshold at 100% contrast level.
*Autism Spectrum Quotient (AQ): a measure for Autism traits.

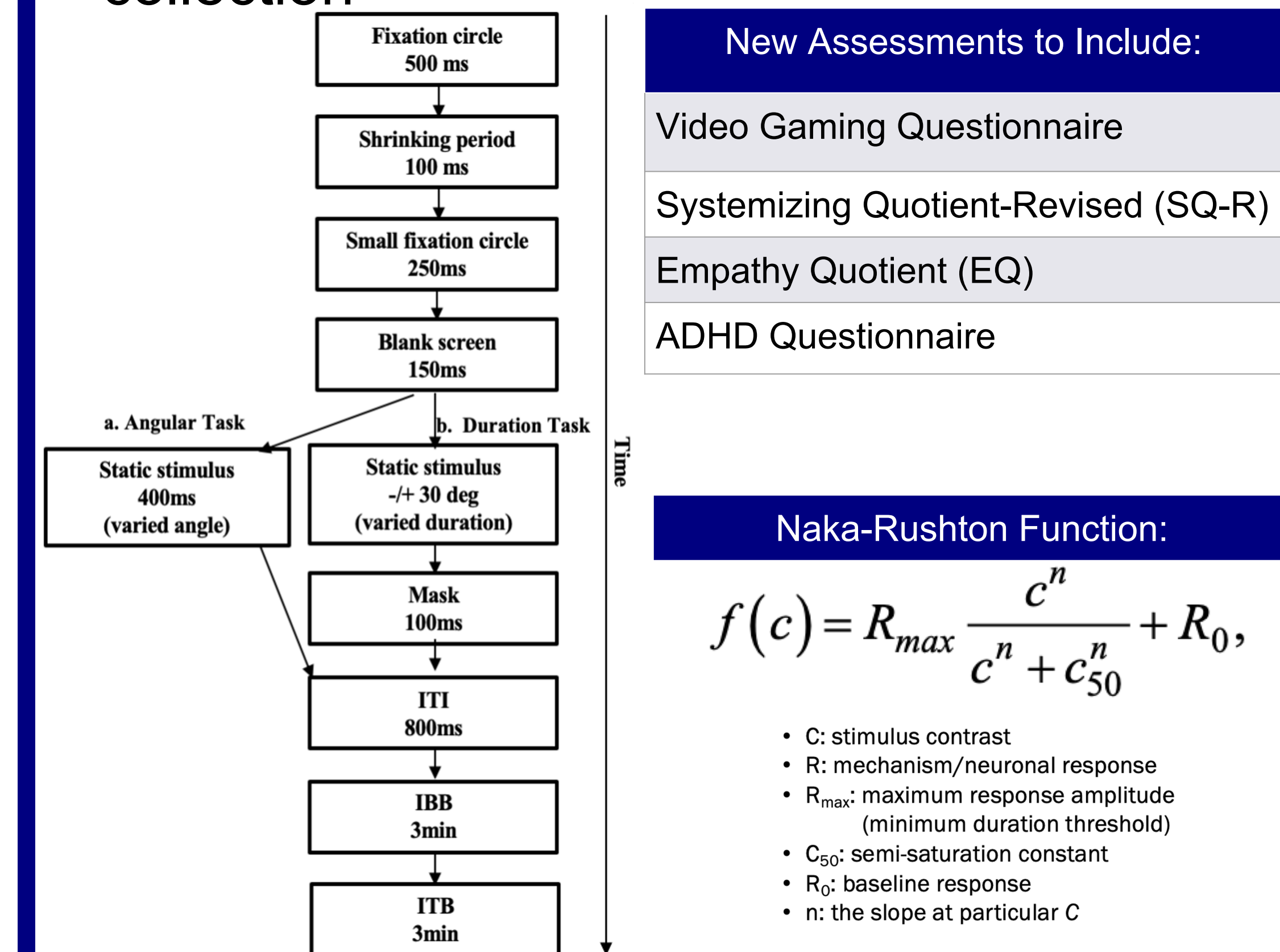
- No significant correlation between males or females' autism traits and best performance.

Discussion

- Consistent with previous study, the current study found a significant behavioral sex difference in visual motion processing.
- Task performance was not linked to the variability in individual autism traits:
 - Participants with higher number of autistic traits did not necessarily have lower duration threshold.
- To get less noisy data representation:
 - Reciprocal of the Naka-Rushton function fit

Future Direction

- Examine if these results can be generalized to visual static perception
- Identify cognitive and social factor(s) underlying the observed sex differences
- Conduct model fitting for current data
- Incorporate FAST and MLE model for data collection



References

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Acknowledgement & Contact

We would like to thank Dr. Chigusa Kurumada and Dr. Ralf Haefner for guidance and support, and Dr. David Dodell-Feder for advice on cognitive assessments.
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