

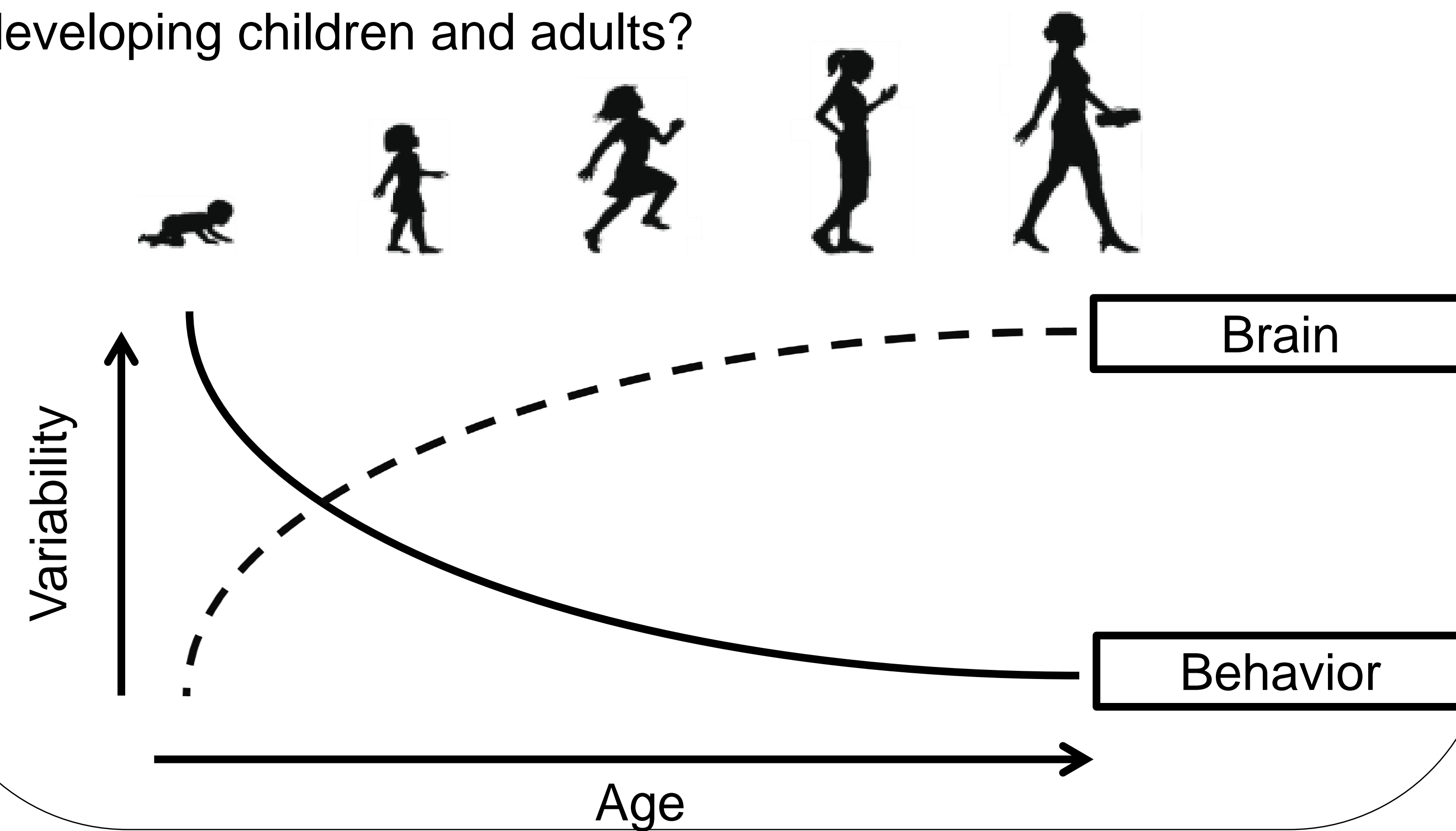
Age and sex modulate the variability of neural responses to naturalistic videos

Samantha Cohen^{1,2}, Agustin Petroni¹, Lei Ai³, Nicolas Langer^{1,3,4}, Simon Henin¹, Tamara Vanderwal⁵, Michael P. Milham^{3,6}, Lucas C. Parra¹

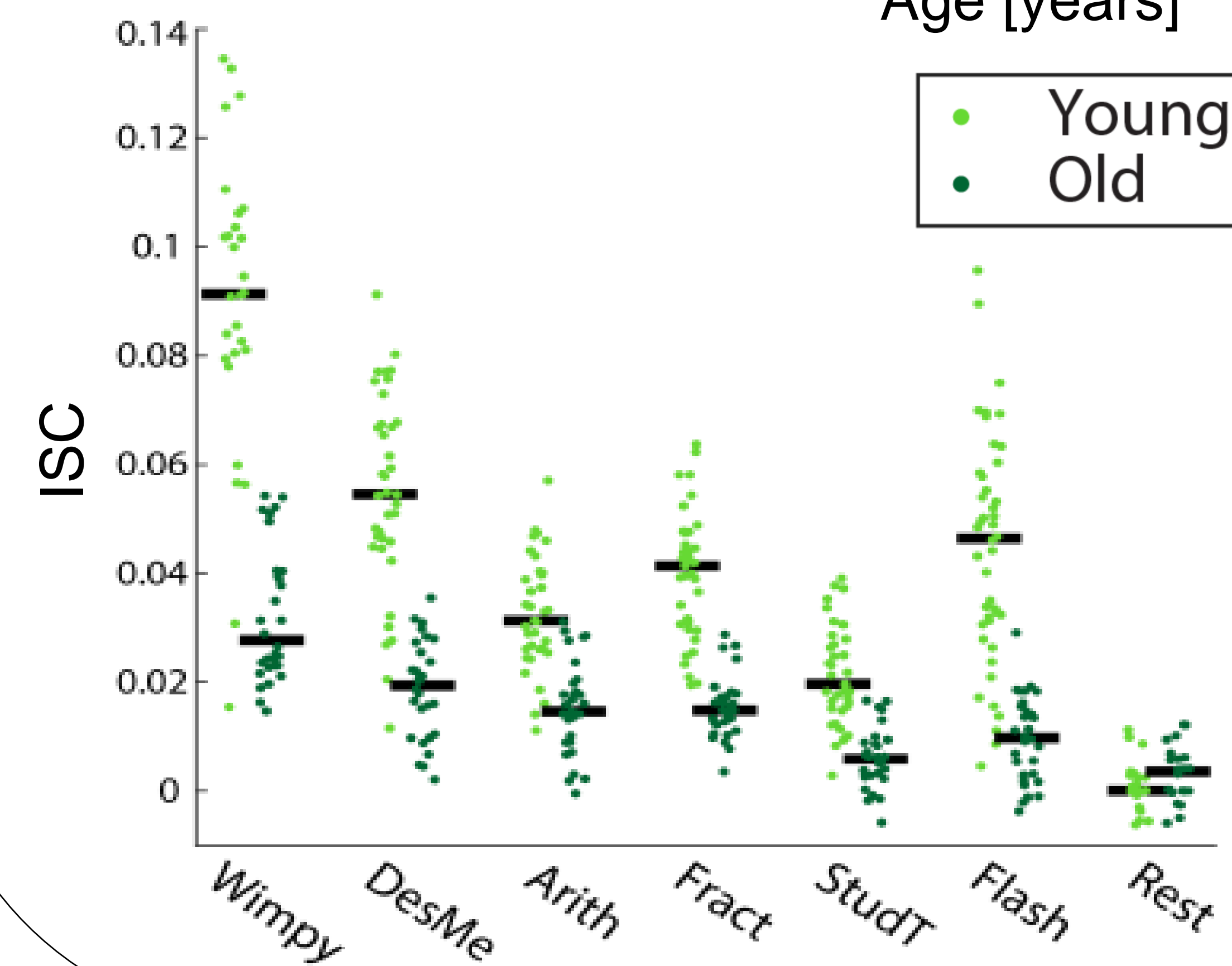
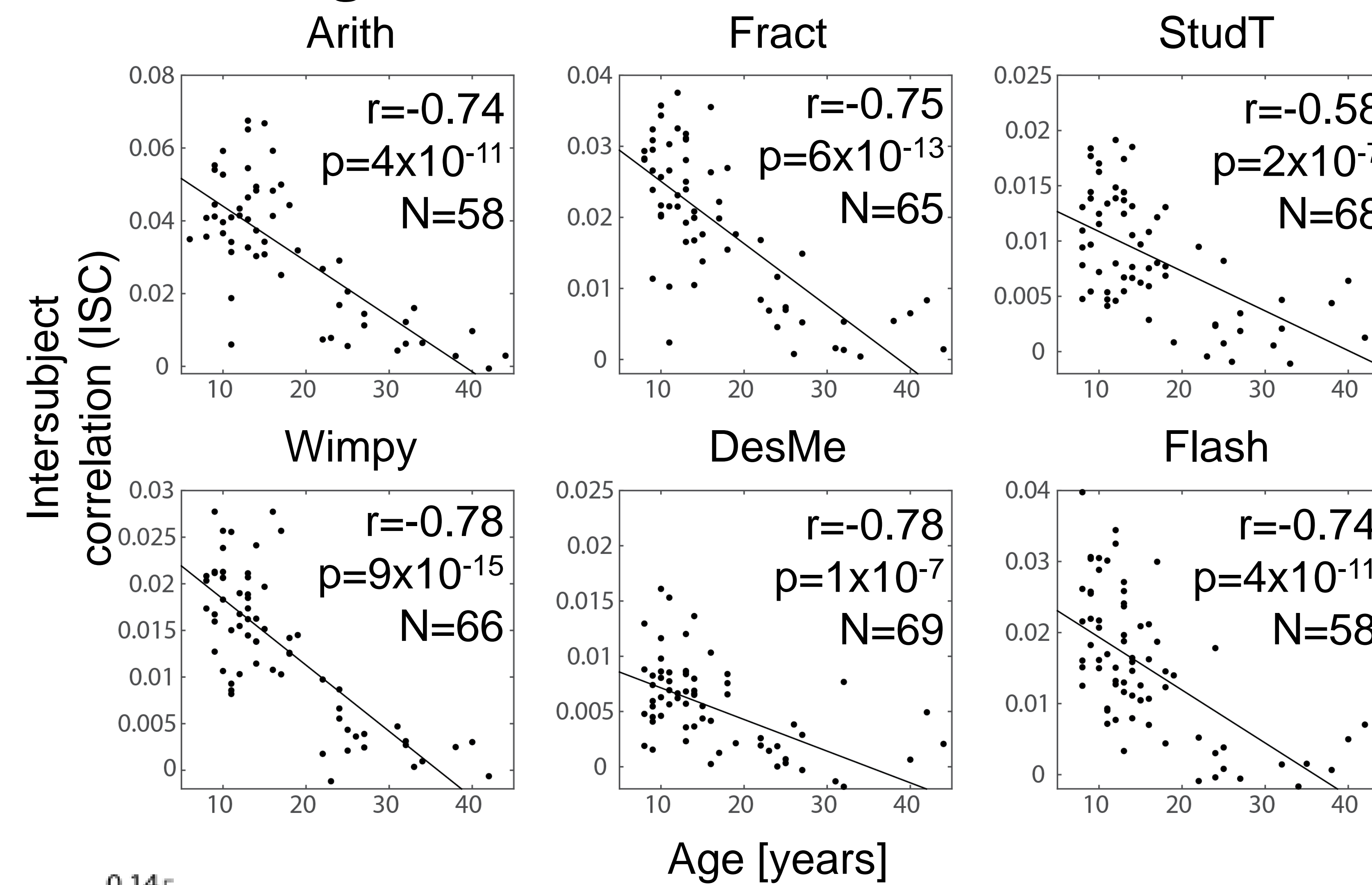
¹ Department of Biomedical Engineering, City College of New York, New York, NY 10031, USA. ² Department of Psychology, The Graduate Center of the City University of New York, New York, NY 10016, USA. ³ Center for the Developing Brain, Child Mind Institute, New York, NY 10022, USA. ⁴ Methods of Plasticity Research, Department of Psychology, University of Zurich, 8050, Switzerland. ⁵ Yale Child Study Center, New Haven, CT 06520, USA. ⁶ Nathan Kline Institute for Psychiatric Research, Orangeburg, NY 10962, USA.

Does neural variability increase with age?

Neural development generally corresponds with an increase in the efficiency and diversity of neural processing. Does this hold true for the processing of naturalistic video stimuli in developing children and adults?

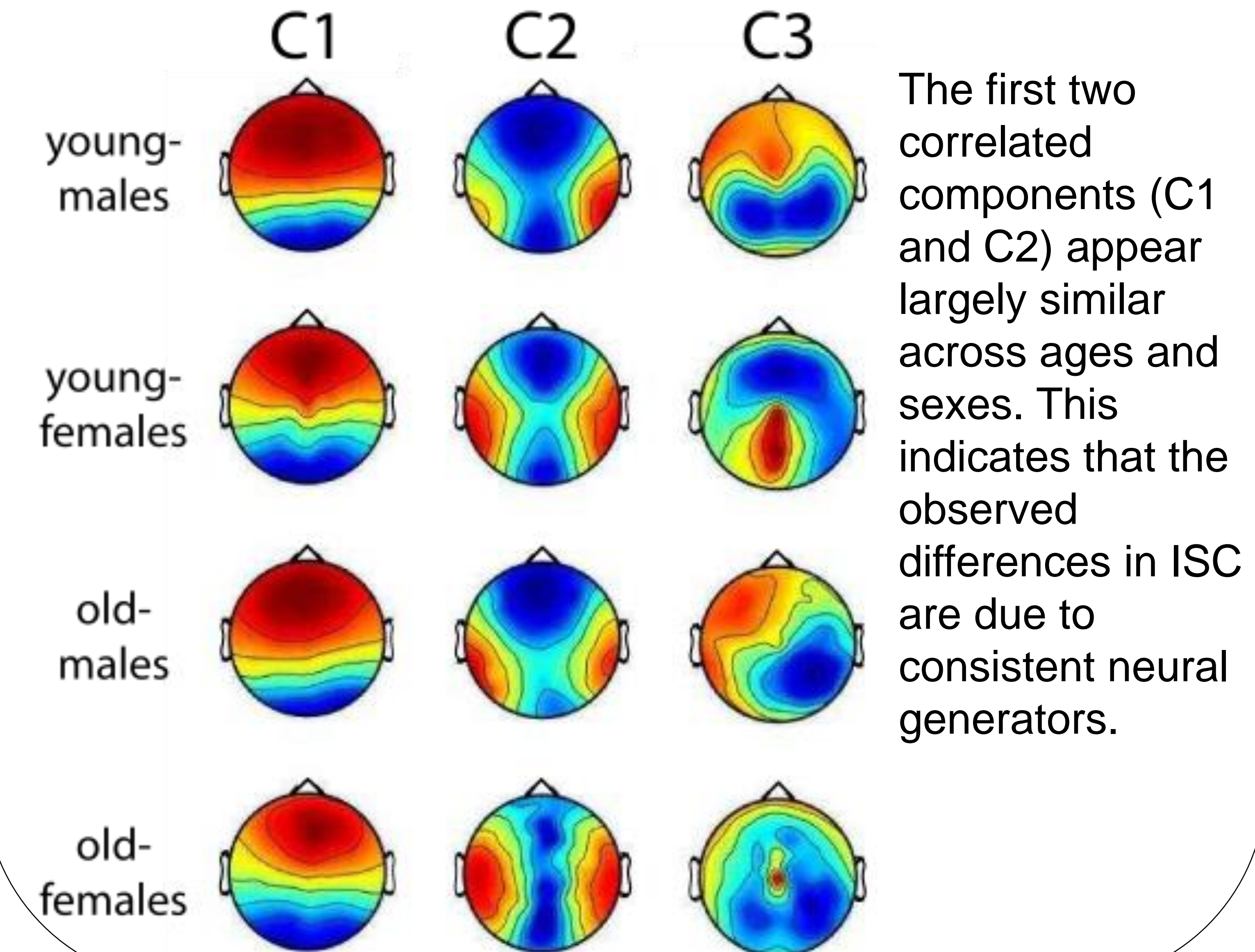


Intersubject correlation decreases with age



For all stimuli used (except Rest which contained no stimulus), ISC decreased with age. The division between “Young” and “Old” was determined by a median split across the age distribution (see Demographics).

Correlated component topographies similar across age and sex groups.



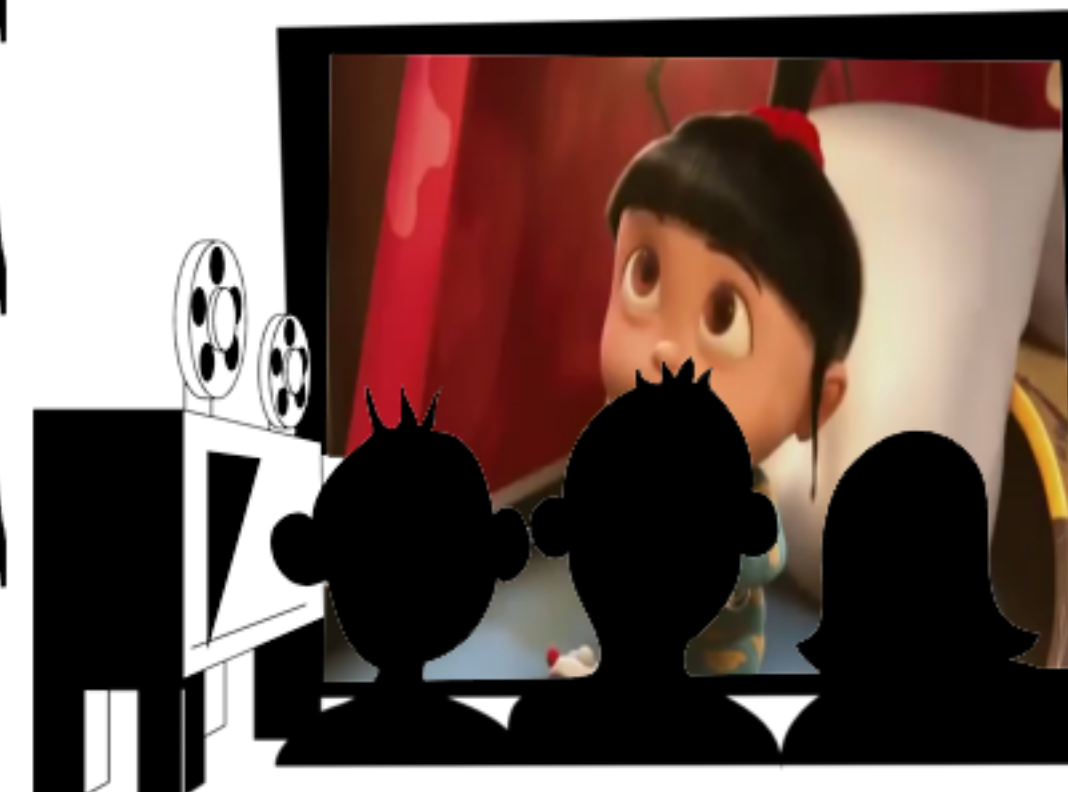
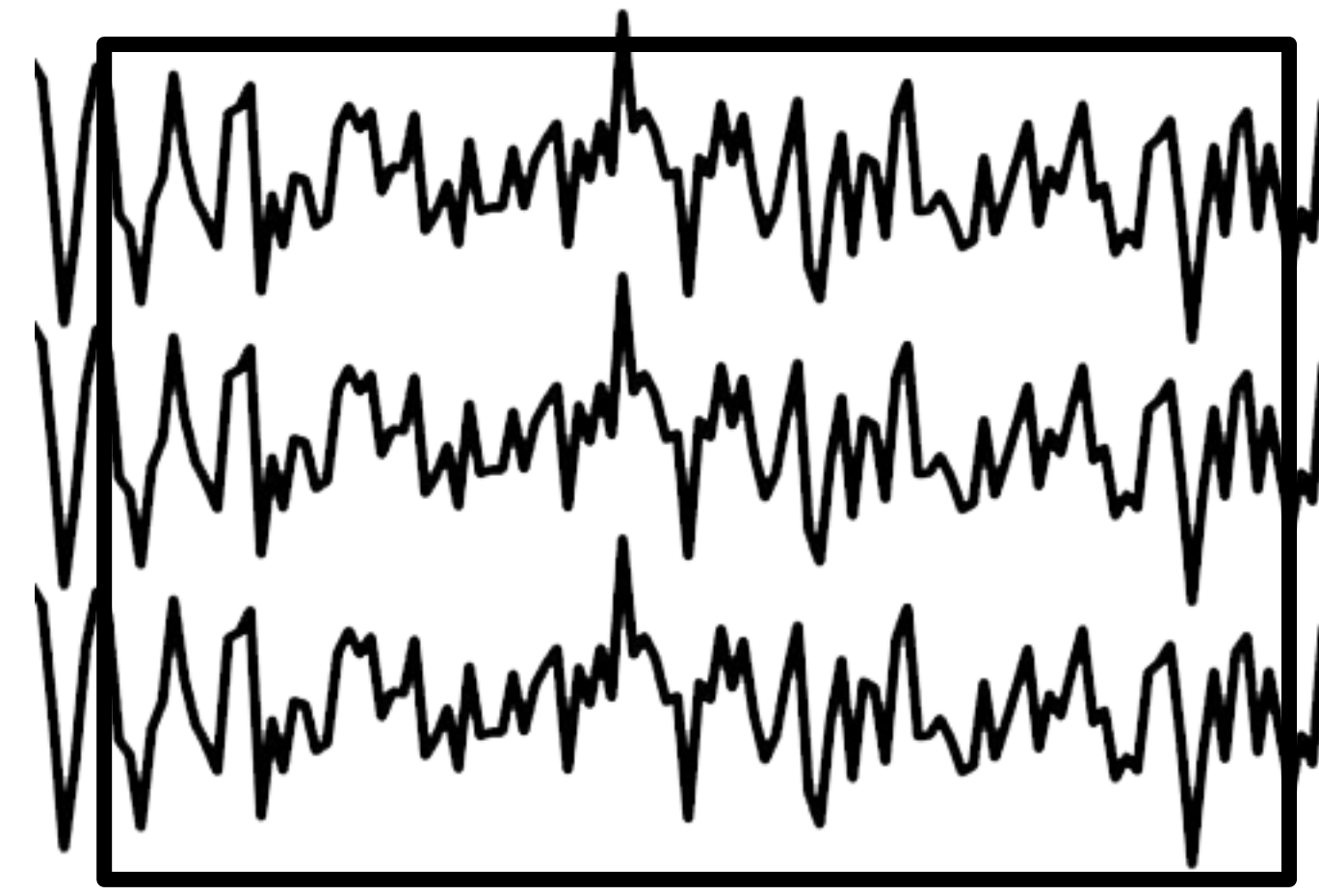
The first two correlated components (C1 and C2) appear largely similar across ages and sexes. This indicates that the observed differences in ISC are due to consistent neural generators.

Intersubject correlation of EEG (ISC): A measure of neural variability

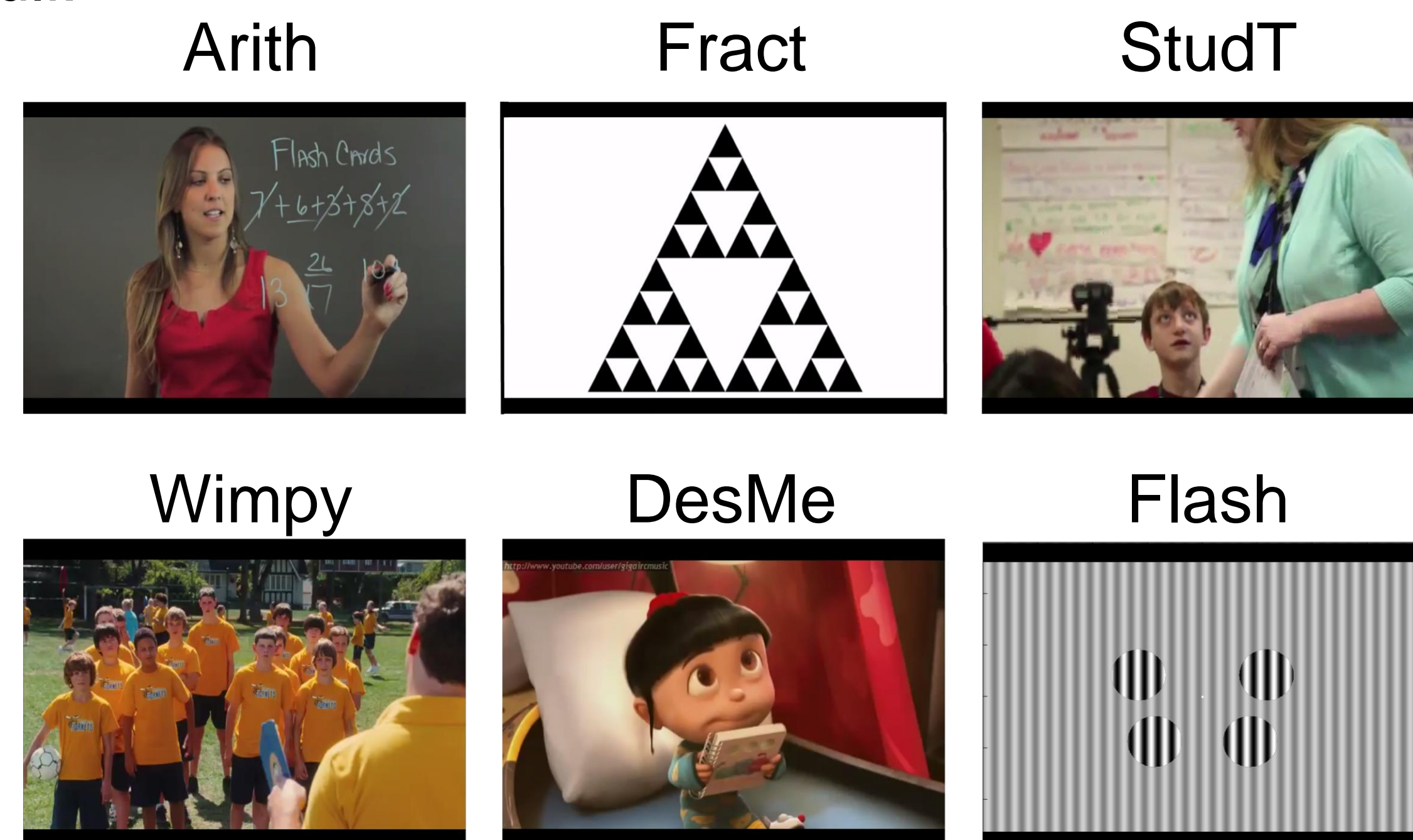
Inter-subject correlation (ISC)

Implicated in:

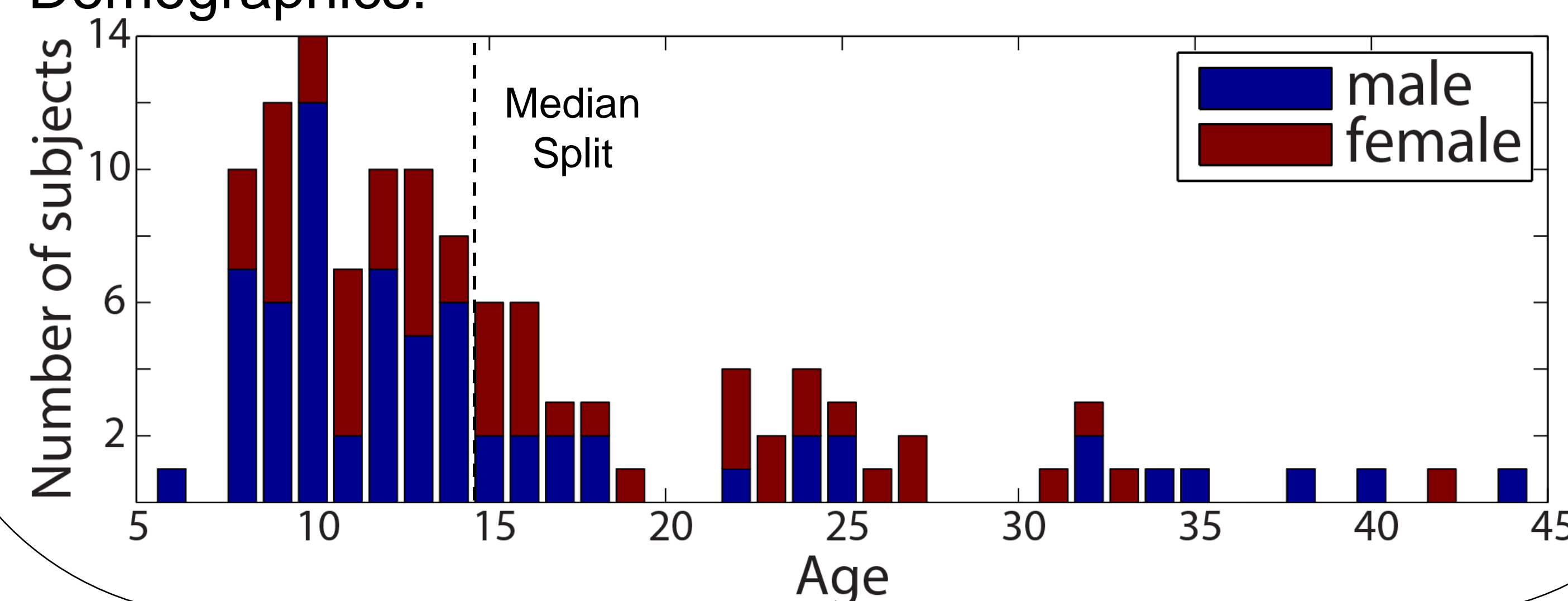
- Memory (Cohen et al., 2016)
- Attention (Ki et al., 2016)
- Engagement (Dmochowski et al., 2014)



Stimuli:

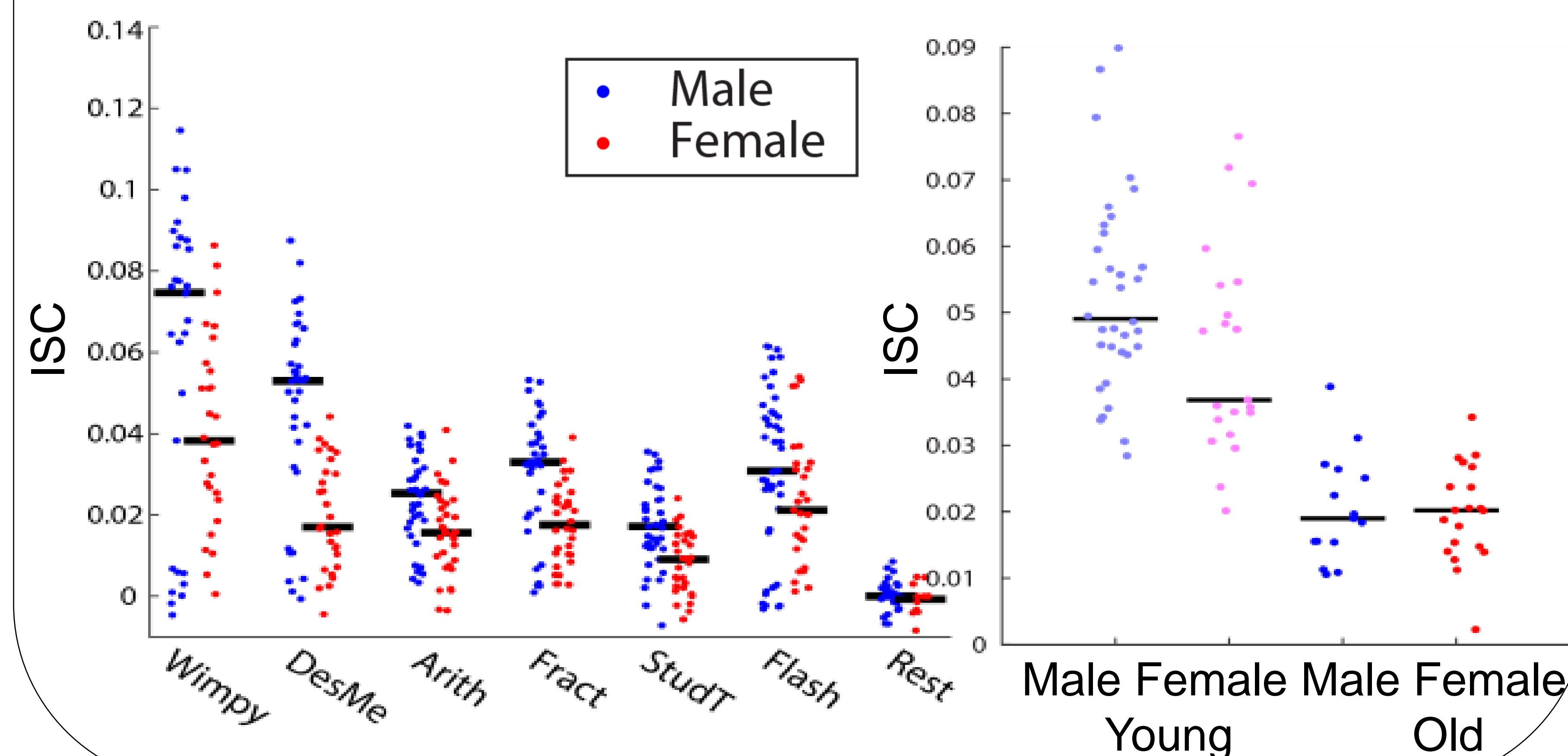


Demographics:



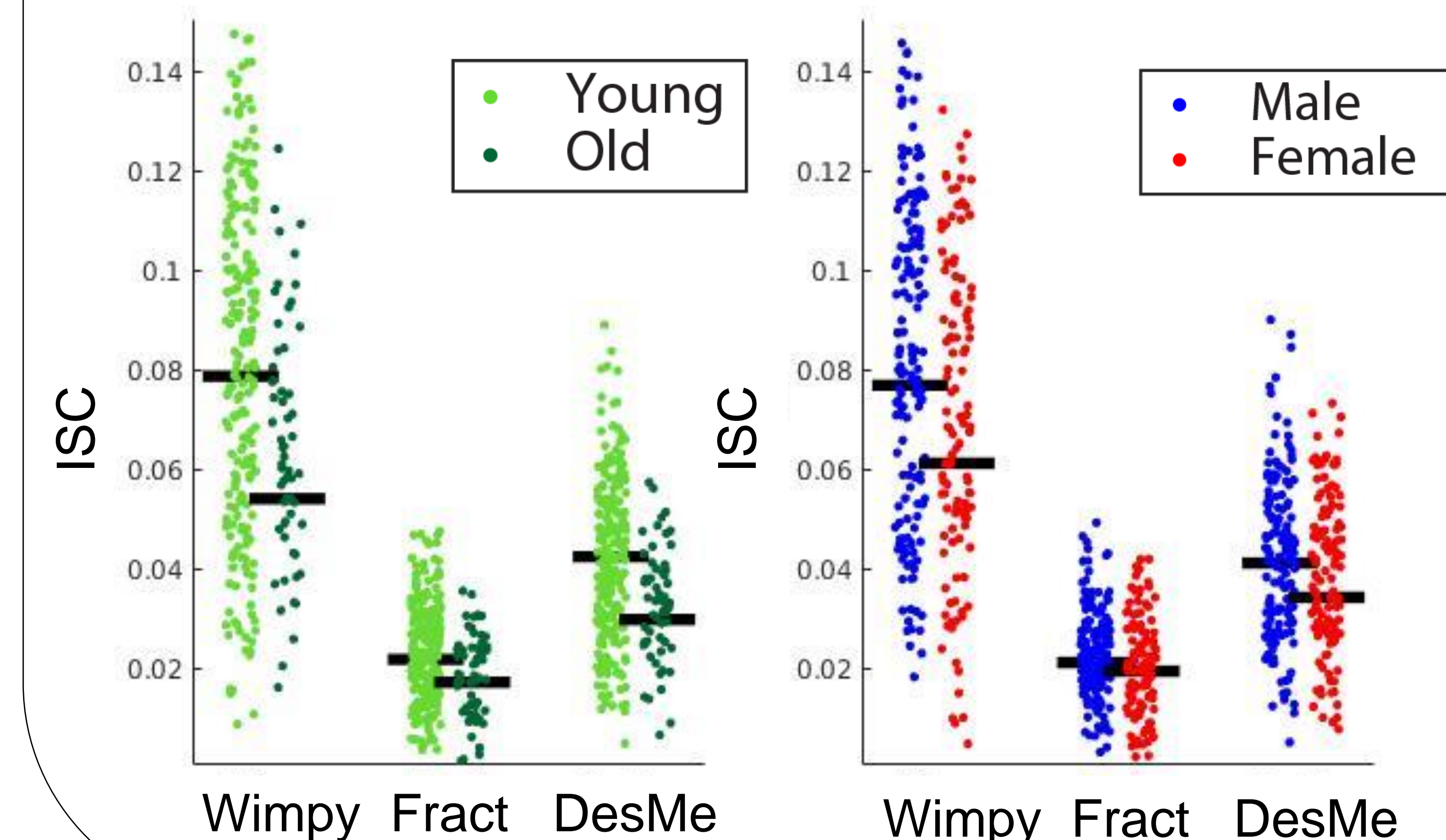
Intersubject correlation is elevated in males

Across all stimuli, males had higher ISC than females. This effect was driven by the “Young” cohort.



Replication of results

Three stimuli were shown to an additional cohort of 303 subjects. The ISC differences between the ages and sexes replicate with this additional cohort.



References

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