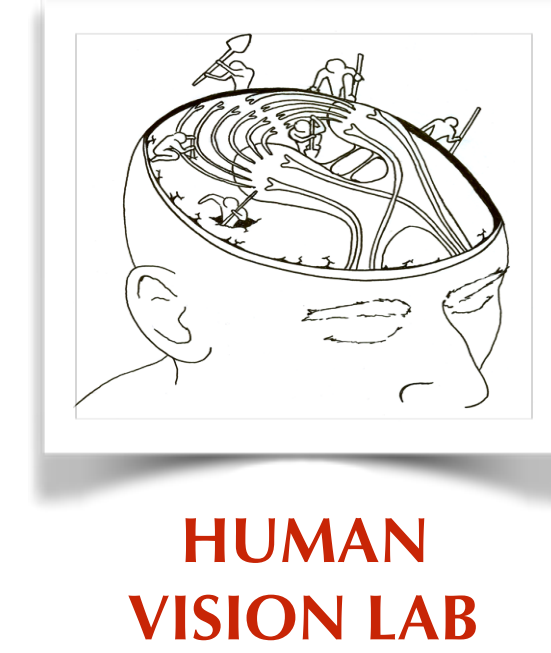


Visual temporal integration windows are adult-like in typically developing 5-7-year-old children

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Motivation

Temporal Integration Windows (TIWs) have only been studied in adults (Wutz et al. 2016). No work has directly investigated TIWs across development.

We tested whether TIWs at 5-7-years of age were adult-like or still developing.

Introduction

How we organize visual information across time influences processes that require well-adapted timing, such as visuomotor control, action sequence perception, and/or pragmatic aspects of communication, such as interactional synchrony.

Temporal Integration Windows (TIWs) *If two or more stimuli fall within the same window they are integrated; if they fall in different windows they are segmented* (VanRullen 2016; Wutz et al. 2016)

Studies investigating the development of temporal processing have been limited. Farzin et al. 2011 found that segmentation thresholds were significantly reduced in infants (0.5-1Hz) compared to adults (10 Hz). However, without measuring integration and segmentation thresholds within the same participant and paradigm, it is difficult to determine TIWs, and challenging to compare individuals and/or groups.

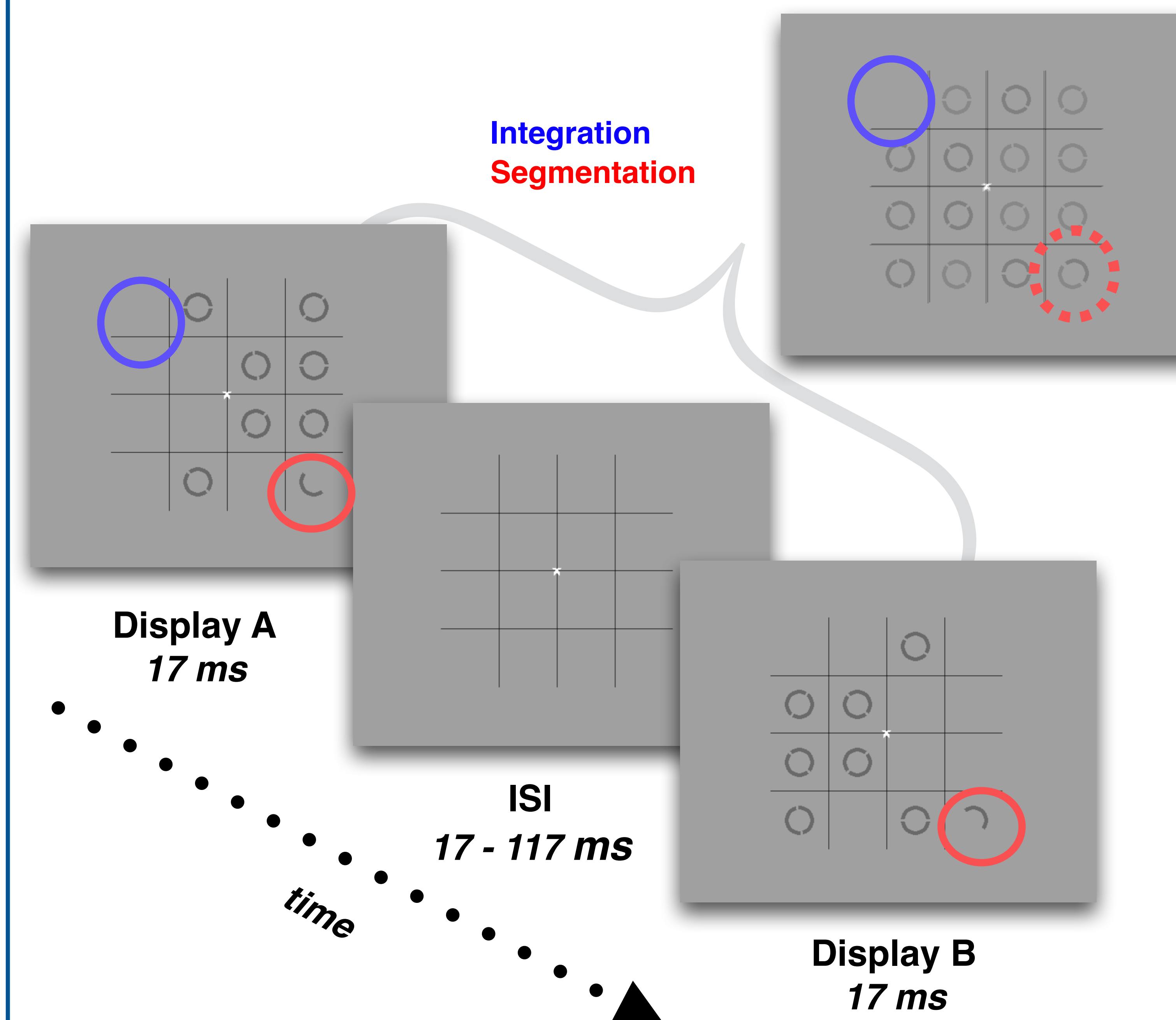
Participants

Child: N = 26, mean = 5.88 years, range = 5;0 - 7;0 years
Adult: N = 20

*Participants (an additional 12 children and 2 adults) were excluded from analysis if their overall Integration or Segmentation performance was not significantly above chance (6.25% correct).

Methods

Missing Dot Task variant (Di Lollo 1980; Wutz et al. 2016)



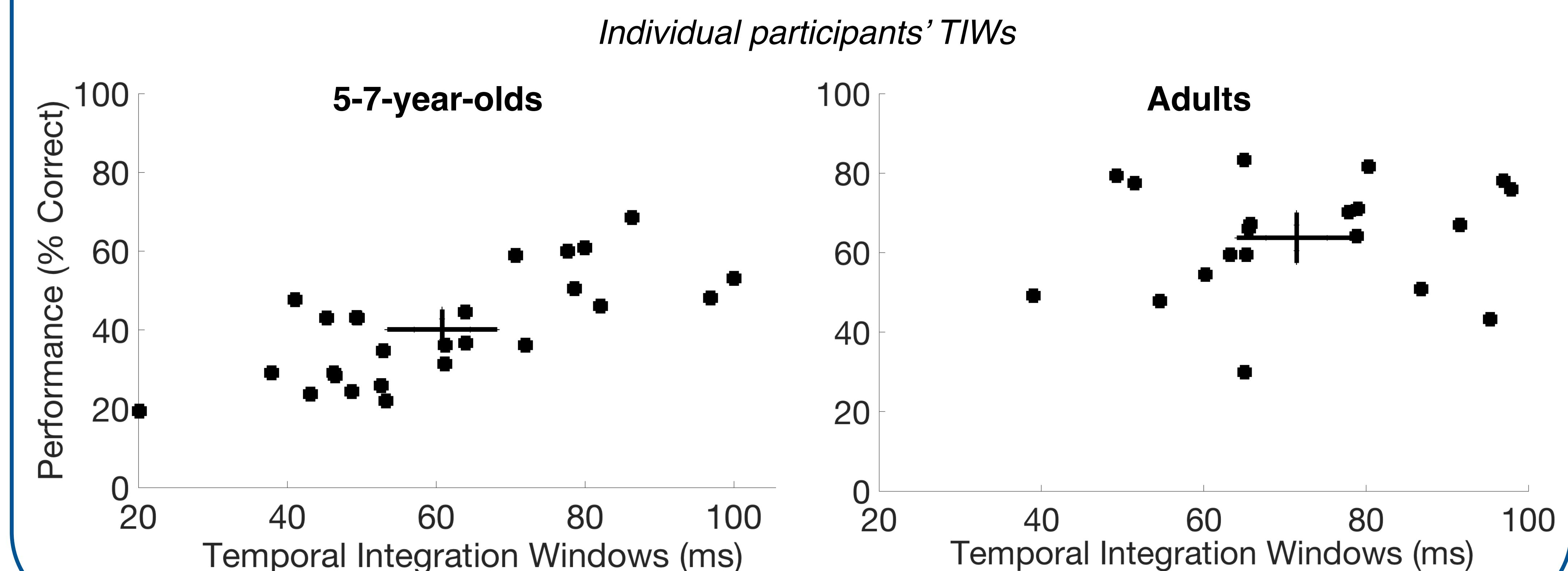
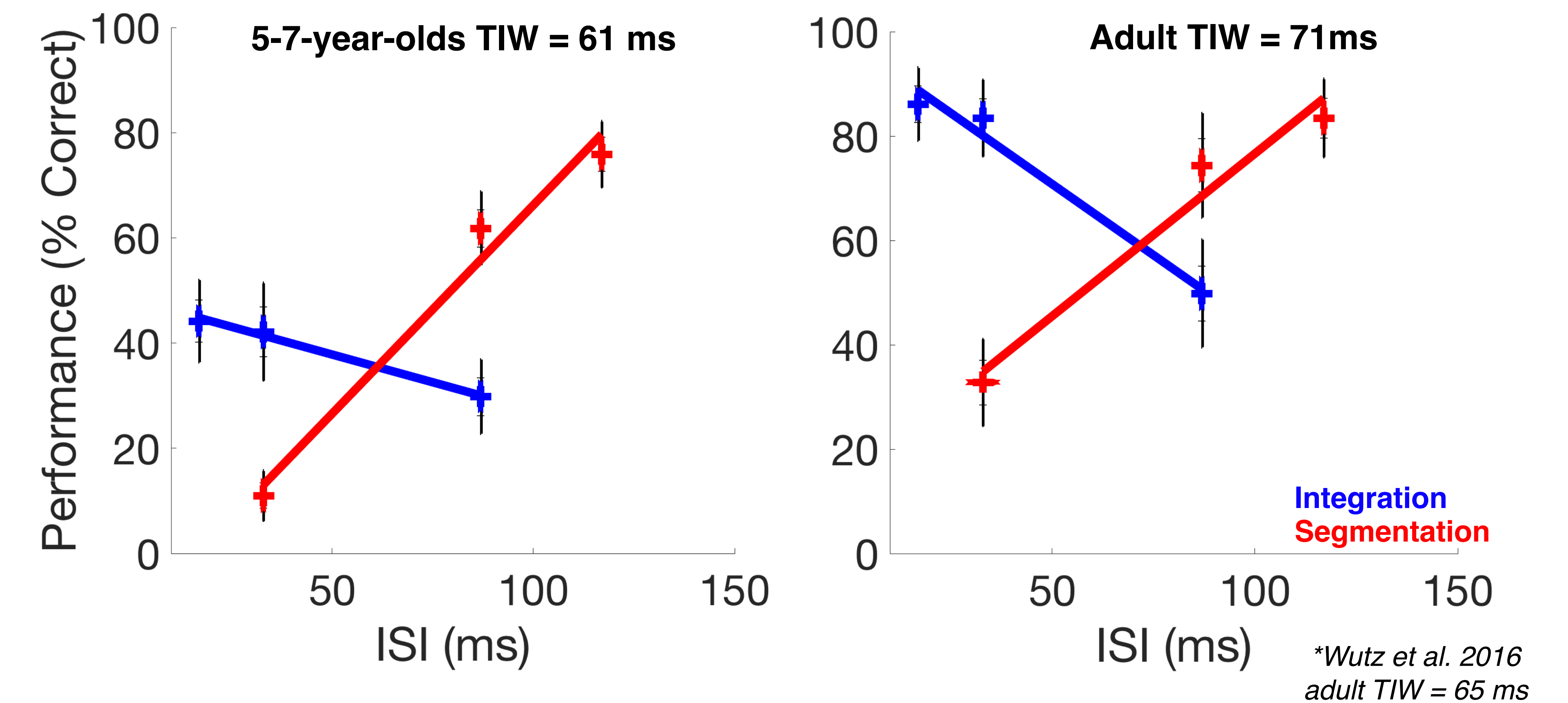
Participants were presented with a sequence of two, 17 ms displays (presented in an ABAB pattern) separated by a brief Inter-Stimulus Interval (ISI) of 17, 33, 87, or 117 ms.

Longer ISI's increase the likelihood of perceiving the half circle segmentation target, but decrease the likelihood of perceiving the empty-space integration target.

Following each trial, participants pointed to the target location.

Results

5-7-year-olds have temporal integration windows that do not significantly differ from adults ($p > 0.05$).

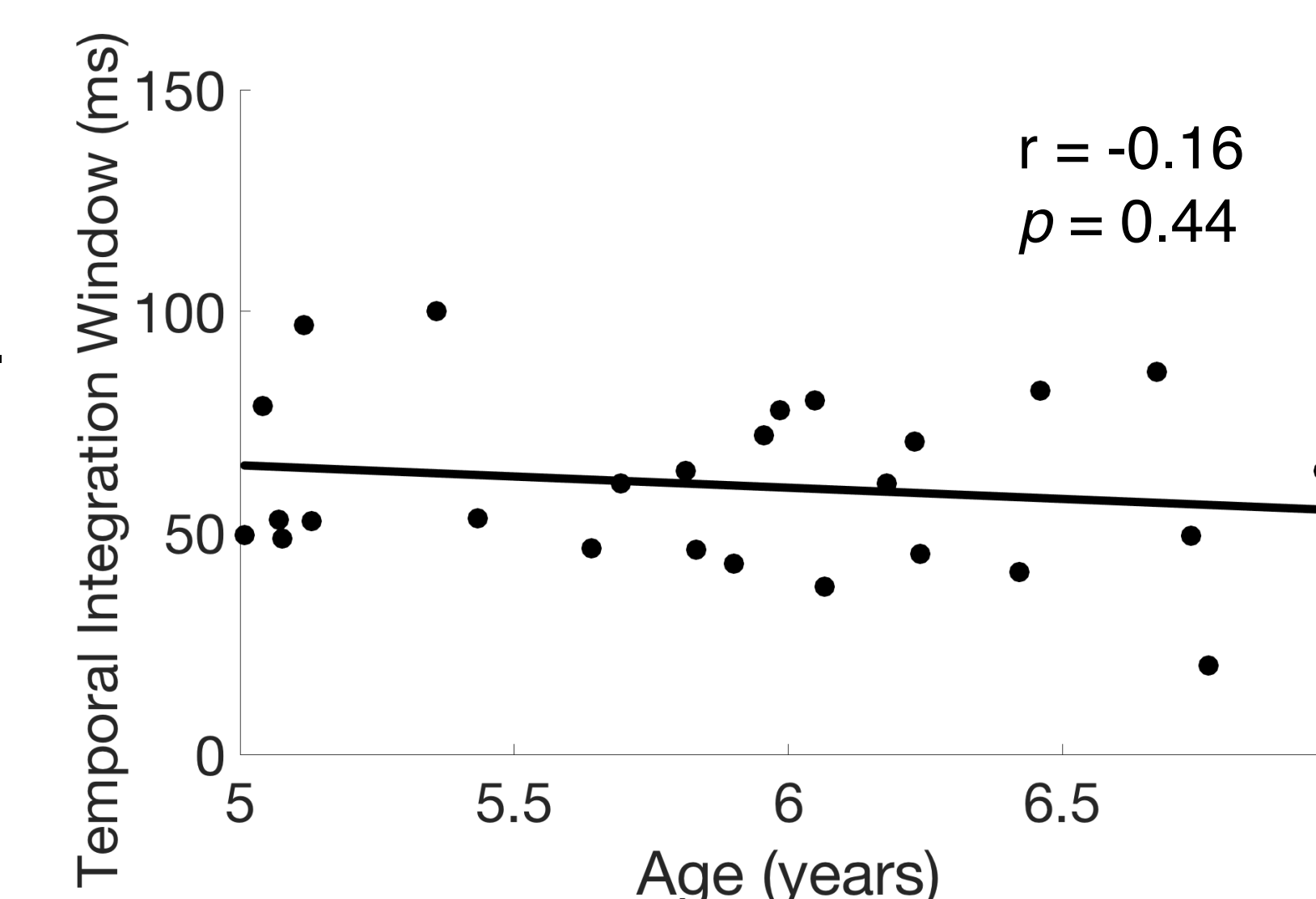


Discussion

5-7-year-olds have TIWs that are adult-like and replicate those found in Wutz et al. (2016) (~65 ms).

There was no age effect within our child sample.

We are currently investigating TIWs in younger children (18-36-months) with and without autism.



Acknowledgement & References

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