

# Unimpaired Novel Object Recognition in Developmental Prosopagnosia



Regan Fry<sup>\*1, 2</sup>, Jeremy Wilmer<sup>3</sup>, Isabella Xie<sup>4, 5</sup>, Mieke Verfaellie<sup>6, 7</sup>, Joseph DeGutis<sup>1,2</sup>

<sup>1</sup> Boston Attention and Learning Laboratory, VA Boston Healthcare System, Boston, Massachusetts, United States of America, <sup>2</sup> Department of Psychiatry, Harvard Medical School, Boston, Massachusetts, United States of America, <sup>3</sup> Wellesley College, Wellesley, Massachusetts, United States of America

<sup>4</sup> Washington University in Saint Louis, Saint Louis, Missouri, United States of America, <sup>5</sup> Harvard Decision Science Lab, Harvard Kennedy School, Cambridge, Massachusetts, United States of America, <sup>6</sup> Memory Disorders Research Center, VA Boston Healthcare System, Boston, Massachusetts, United States of America, <sup>7</sup> Boston University School of Medicine, Department of Psychiatry, Boston, Massachusetts, United States of America

## Introduction

Recent studies have shown that 22-80% of developmental prosopagnosics (DPs) have mild to major object recognition deficits as well as significant group-level deficits in object recognition.

Prior investigations have largely used familiar objects (e.g., cars) as their measure of object recognition, and performance on these object categories could depend on object-specific experience.

To better characterize DPs' object recognition abilities, 30 developmental prosopagnosics and 30 typically-developed controls (TD) were administered a novel object memory test (NOMT Ziggerins) and the Cambridge Face Memory Test (CFMT).

## Methods

### Test Battery

- Cambridge Face Memory Test
- Novel Object Memory Test – Ziggerins

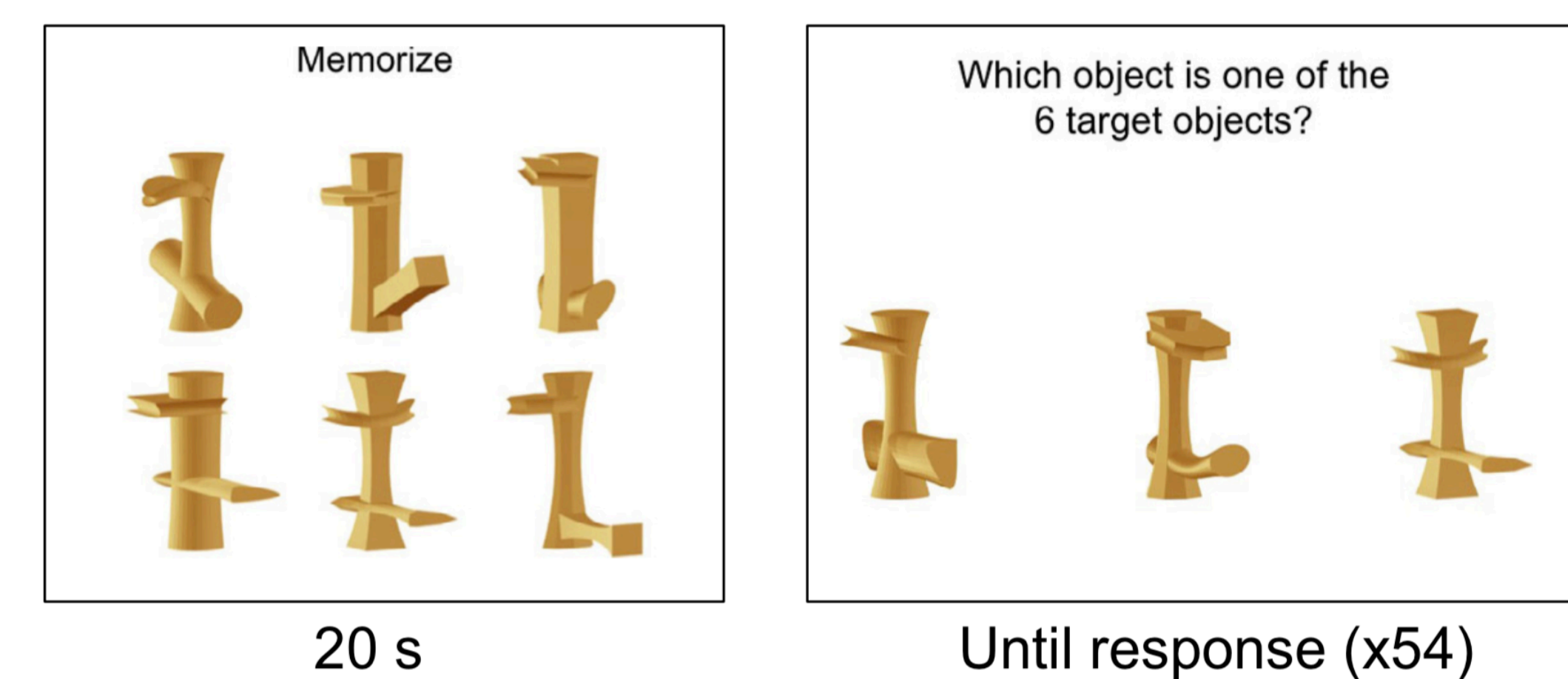
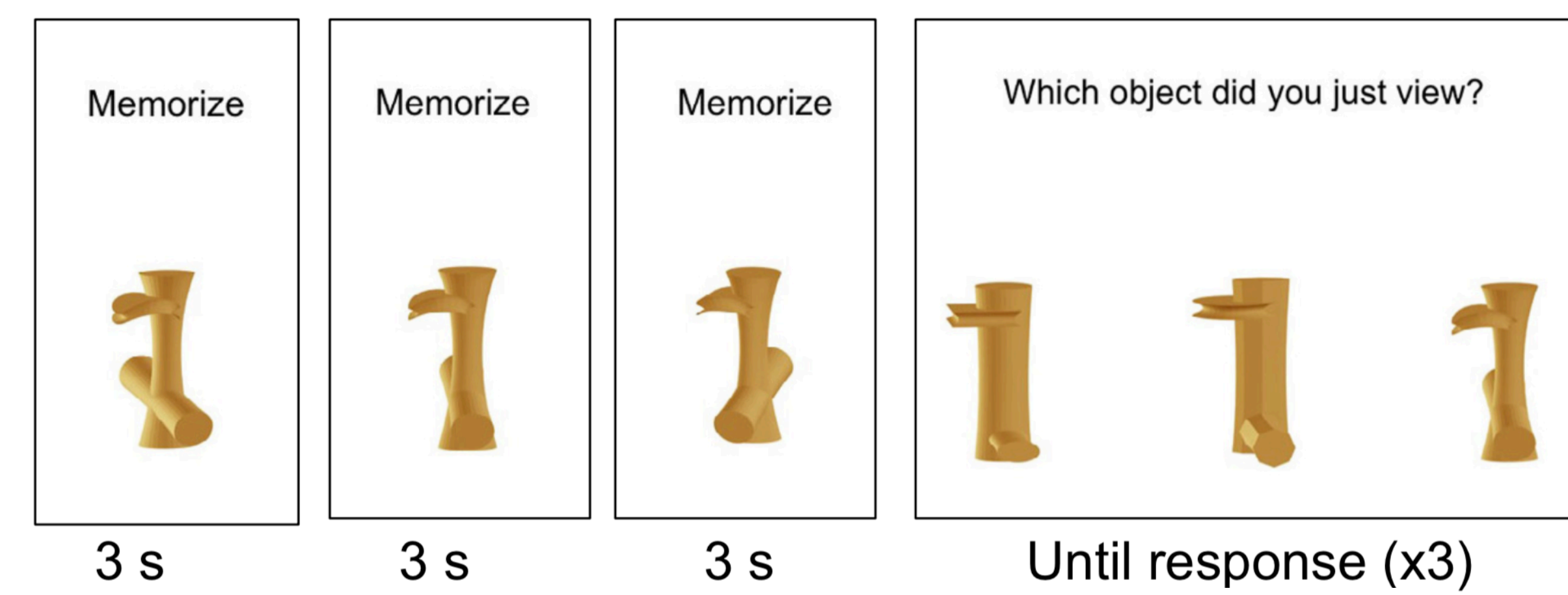
Participants are shown either a face (CFMT) or object (NOMT) from 3 different viewpoints and must subsequently select the face or object they have learned from among 3 choices, 2 of which are distractor items. This repeats for 6 target items.

### CFMT



### NOMT

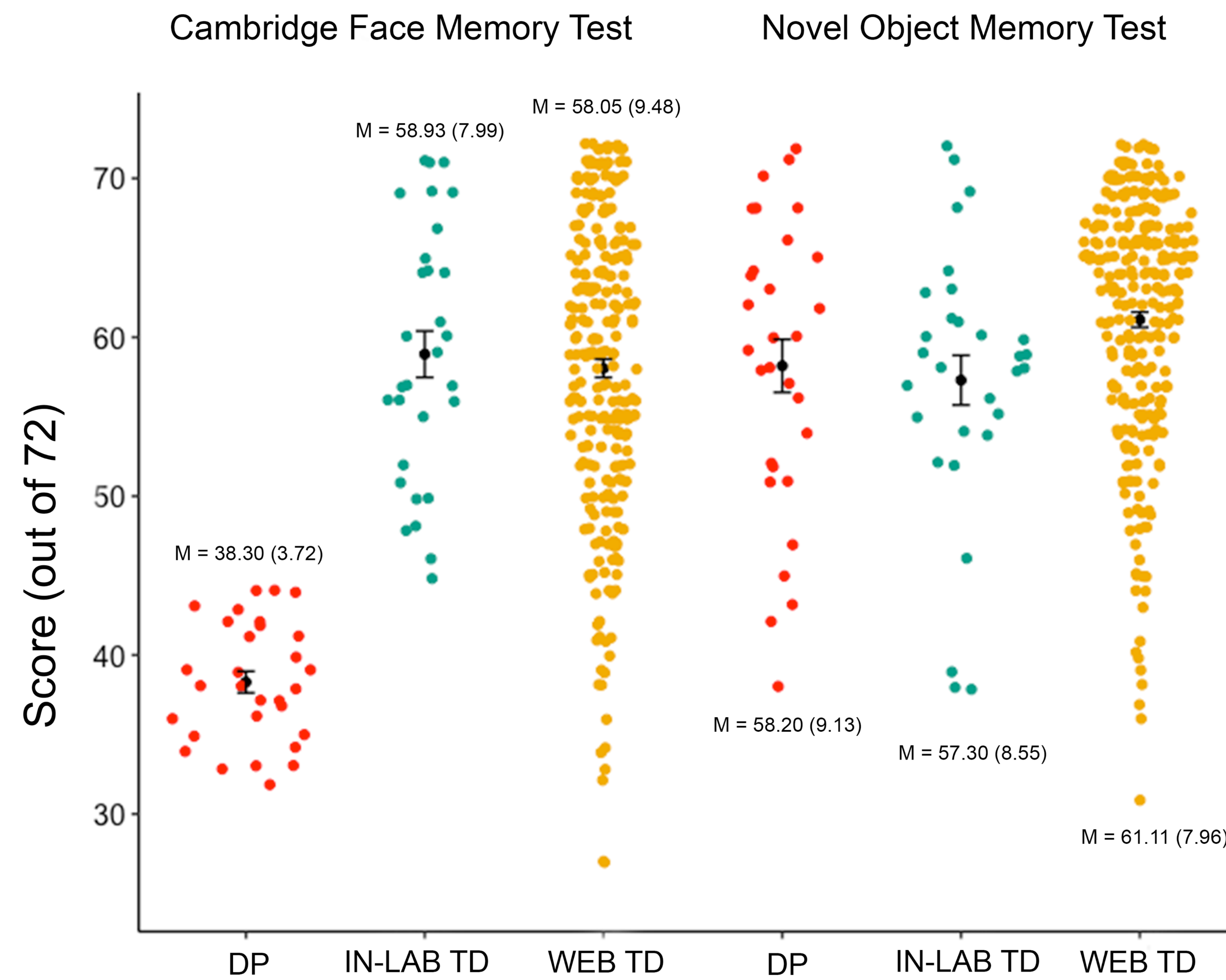
Learning Phase (repeated for each of 6 targets)



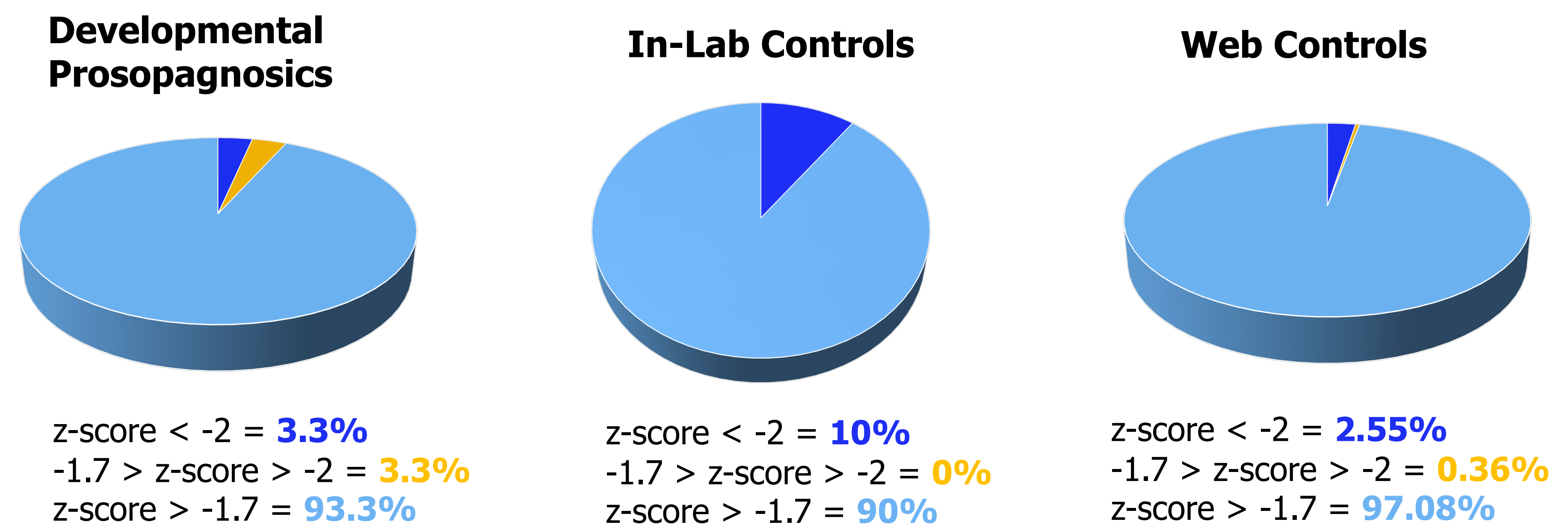
### Participants

Measure	DP	In-lab TD	Web TD	p-values	
				In-lab	Web
Age	38.50 ± 13.69	39.70 ± 11.09	36.78 ± 12.04	.710	.464
Gender (F:M)	24:5	18:12	160:111	.054	.004**
N	30	30	274		

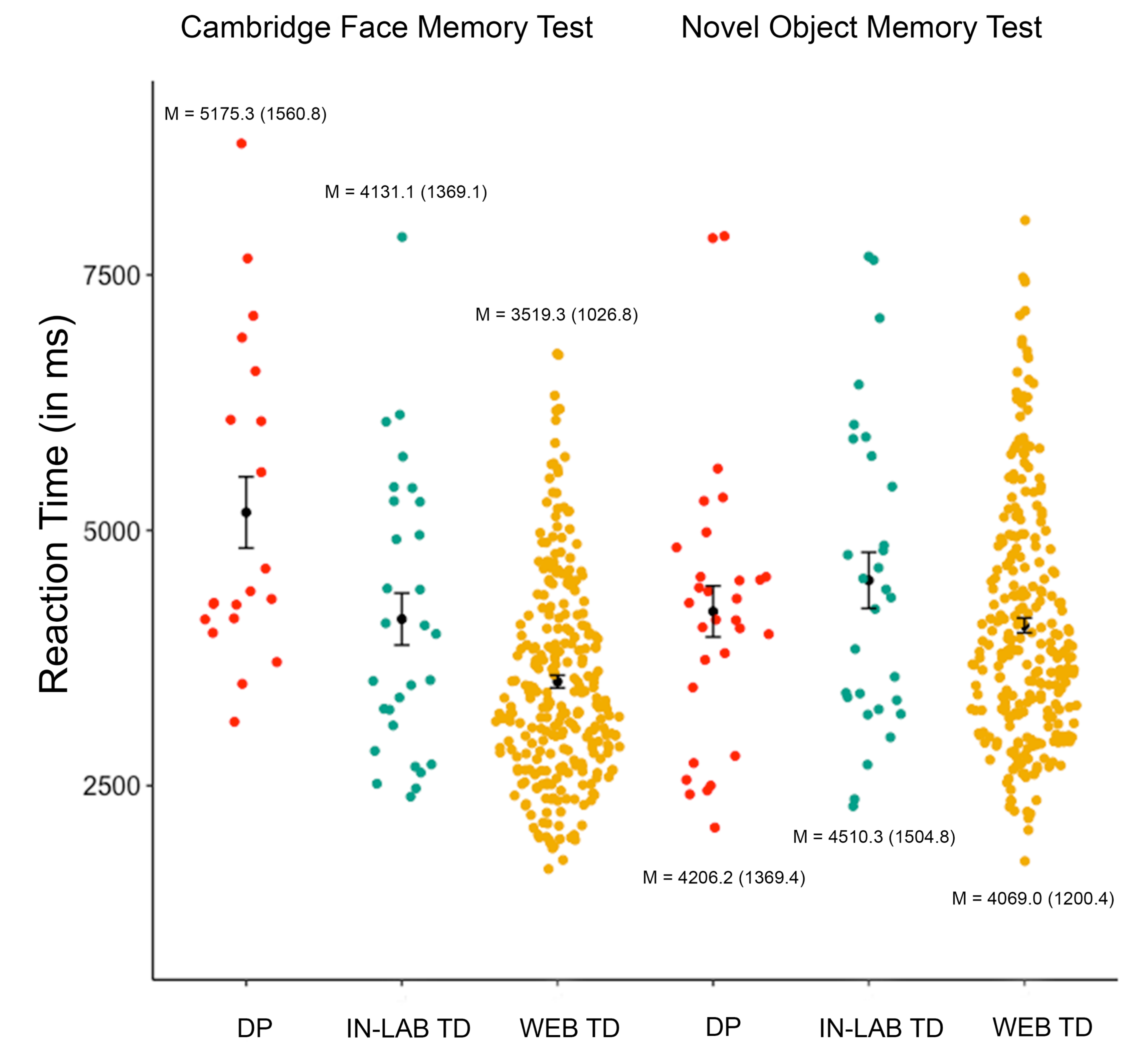
## Accuracy Results



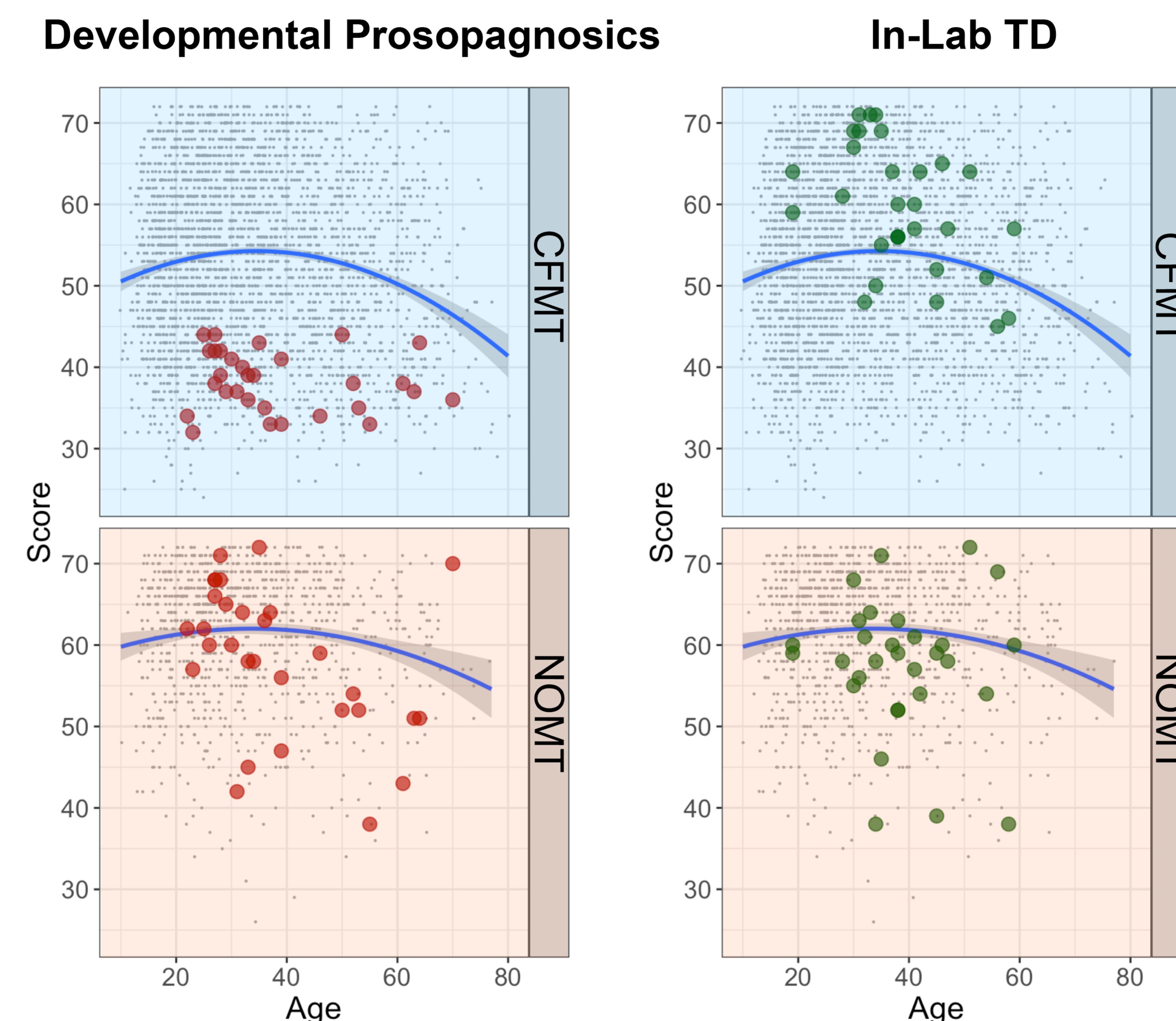
## NOMT Individual Results



## Reaction Time Results



## Lab-Tested Participants vs. Age Norms



## Discussion

- DPs performed equally as well as control subjects on a test of novel object memory, and the proportion of DPs showing impaired performance was not significantly different from controls.
- These findings suggest that object recognition deficits do not necessarily accompany face recognition impairments.
- Previously reported familiar object deficits may instead be the result of decreased capacity to benefit from experience with familiar object categories.

### Acknowledgements

This research was supported by R01 from the National Eye Institute awarded to JD (#R01EY026057)