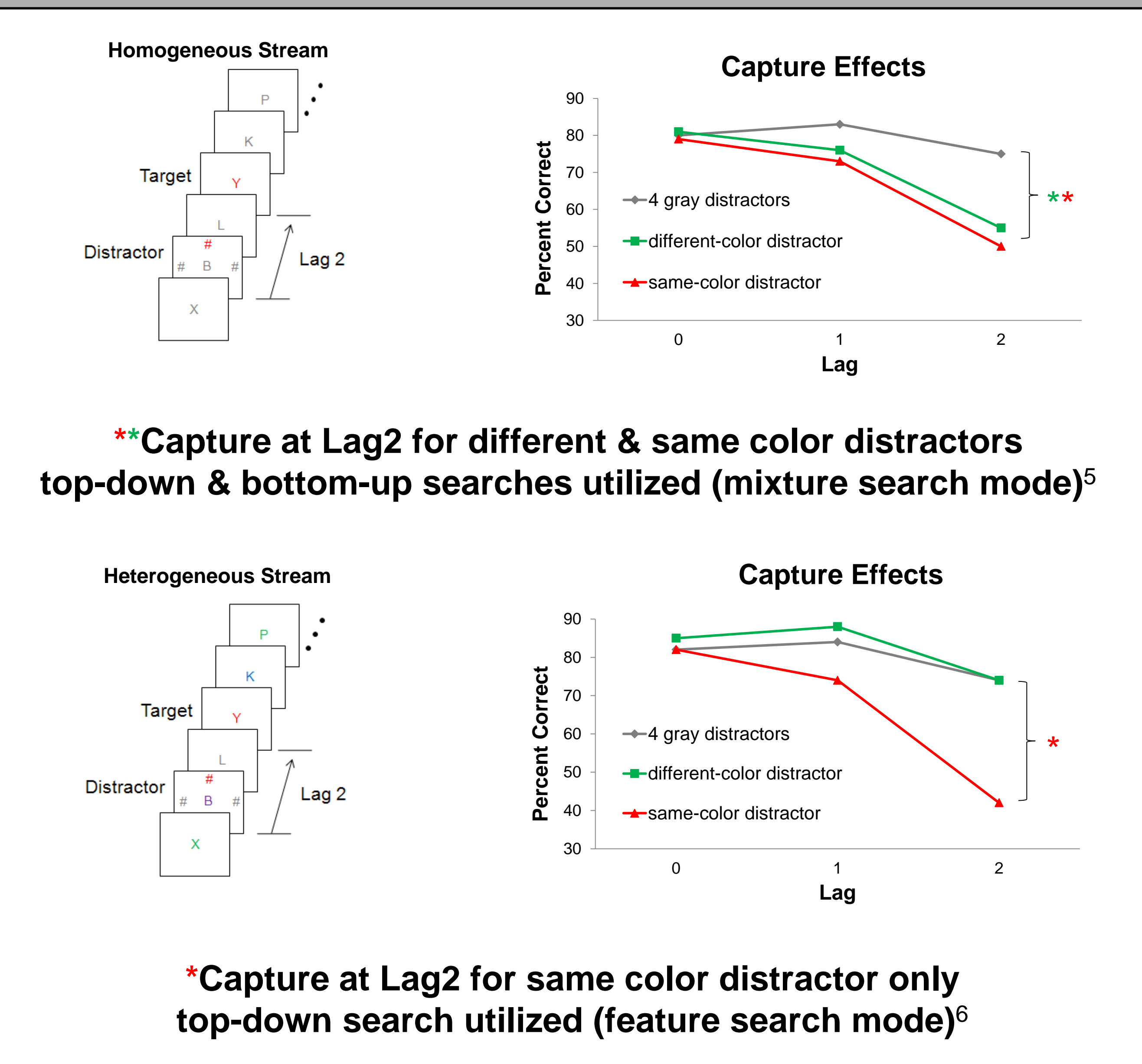


## INTRODUCTION

- Attentional orienting is a consequence of a finely tuned interplay between top-down (goal-driven) and bottom-up (stimulus-driven) attentional allocation
- The degree to which this interplay is affected by aging remains unclear
- Here, we present evidence that aging participants are less efficient in avoiding distraction<sup>1,2,3,4</sup>, suggesting a targeted age-related atrophy of the superior parietal lobule

## ATTENTIONAL CAPTURE



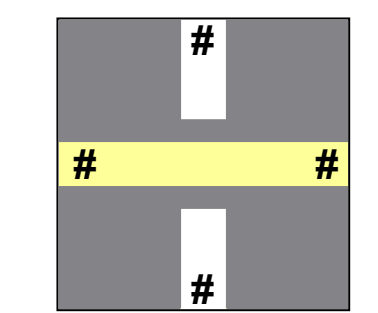
## PURPOSE

To investigate how the interplay between goal-driven (top-down) vs. stimulus-driven (bottom-up) attentional allocation is affected by the aging process

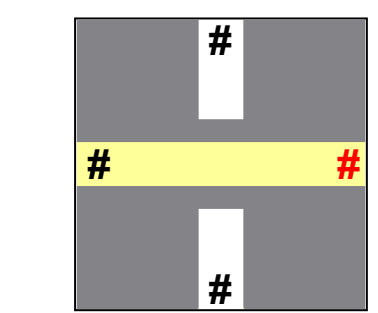
## PARADIGM

**Conditions:**

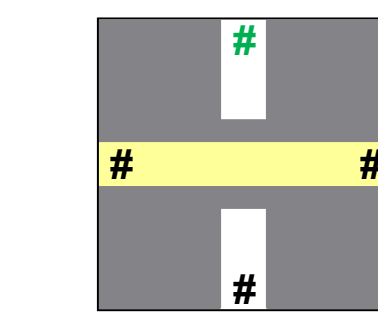
- Temporal Lag: 0, 1, 2
- Distractor: Black, Target Color, Irrelevant Color
- Age Groups: 18-22 year olds, 65-80 year olds



Black Distractor (BlackDist)



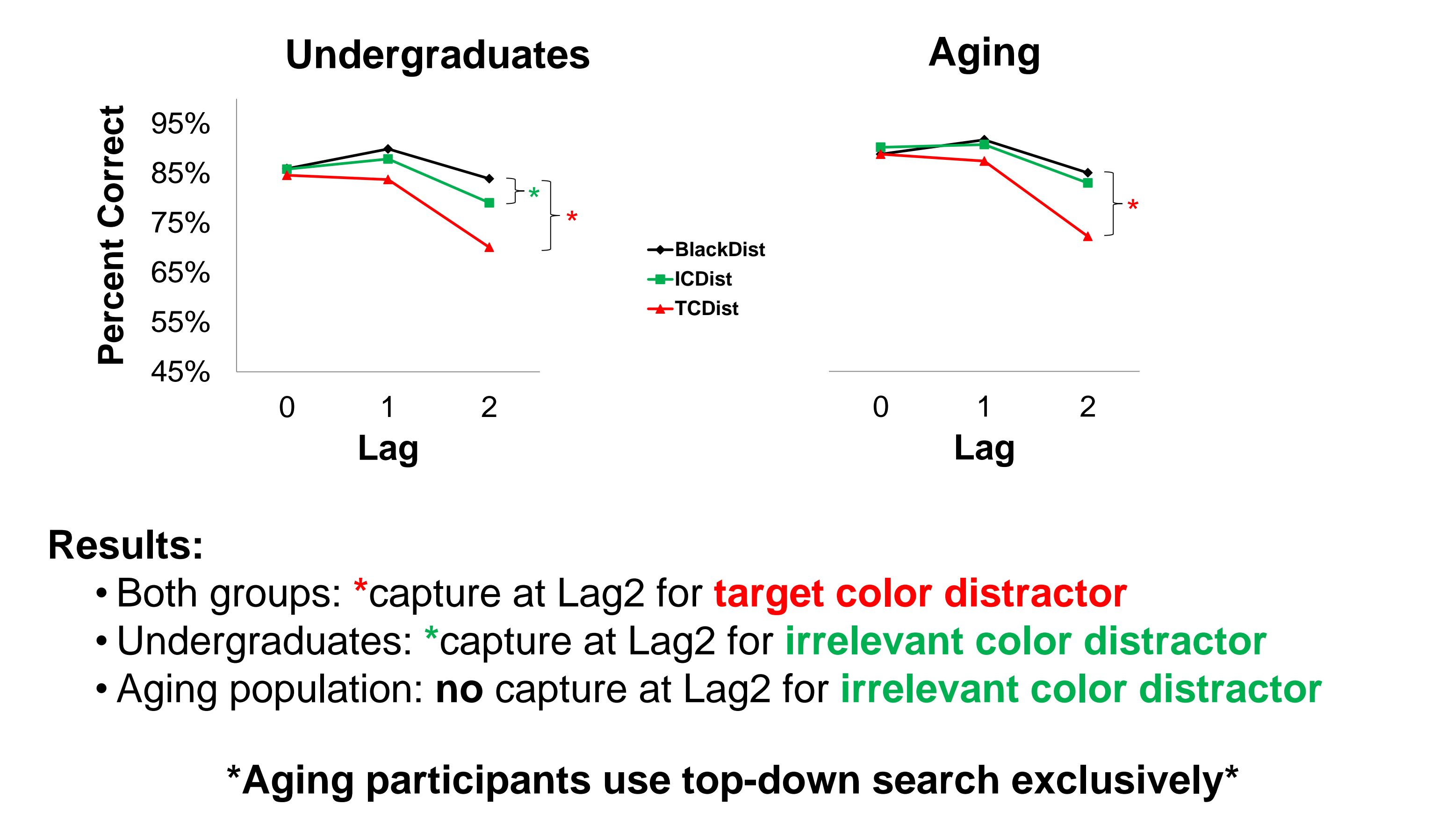
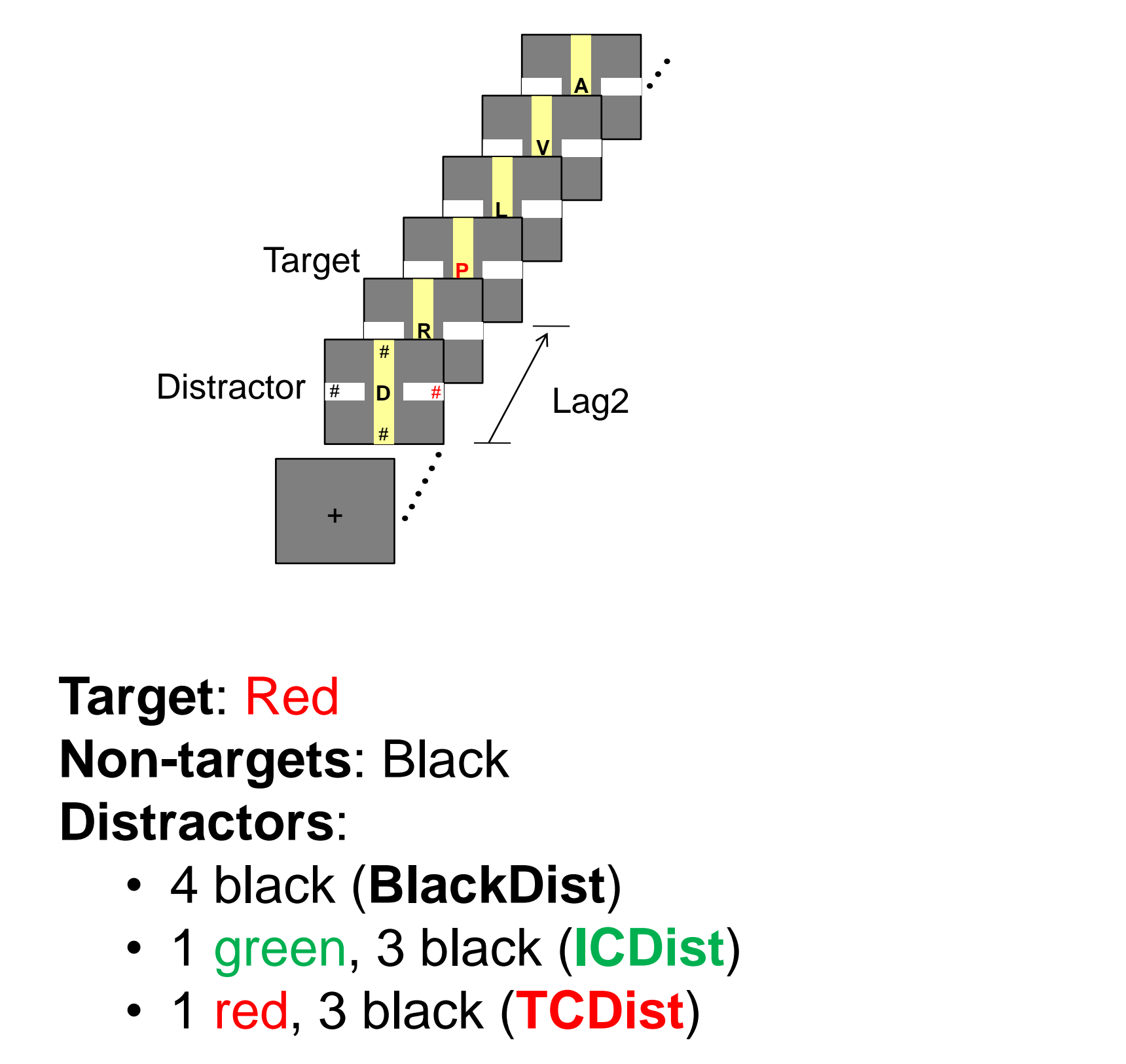
Target Color Distractor (TCDist)



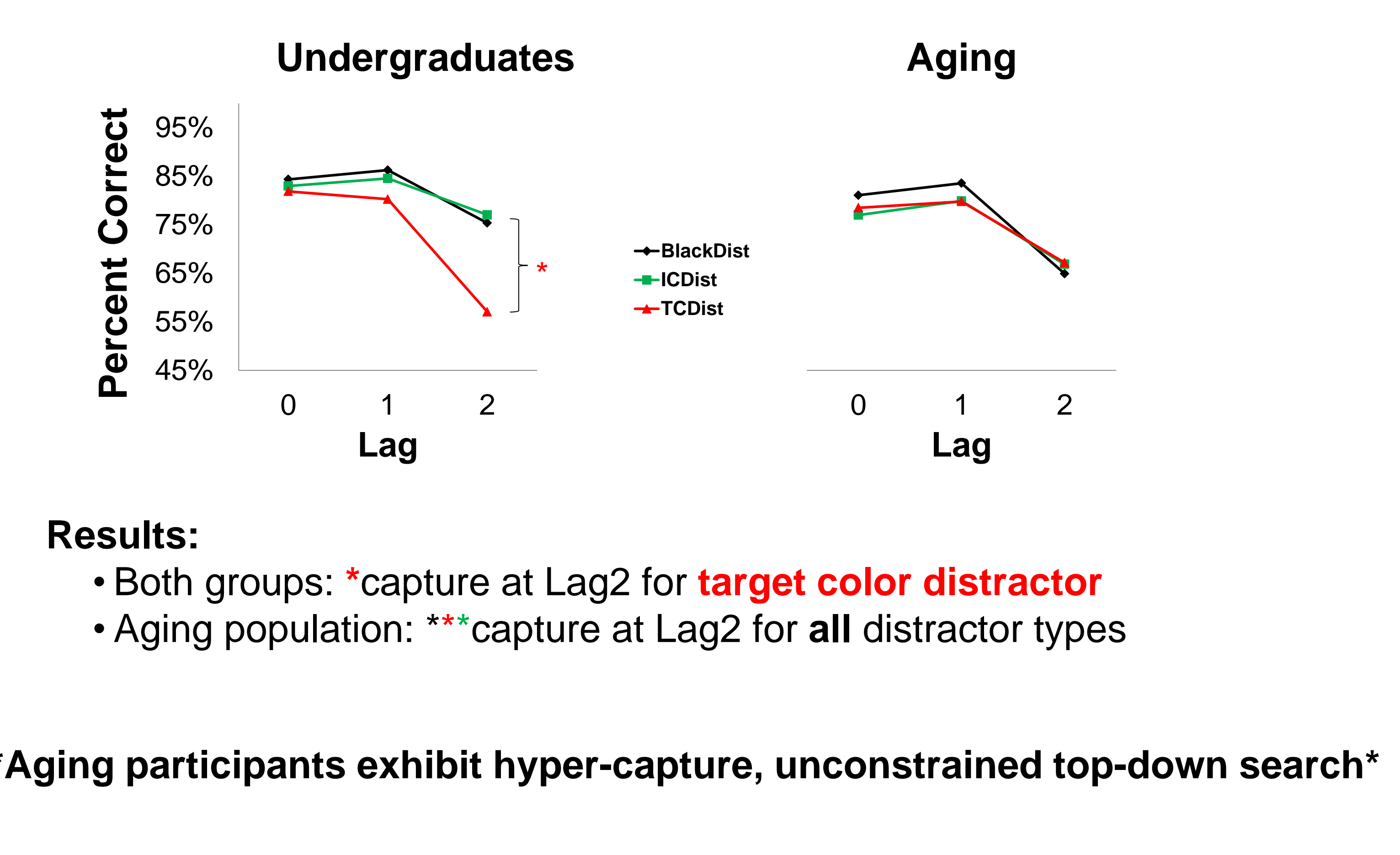
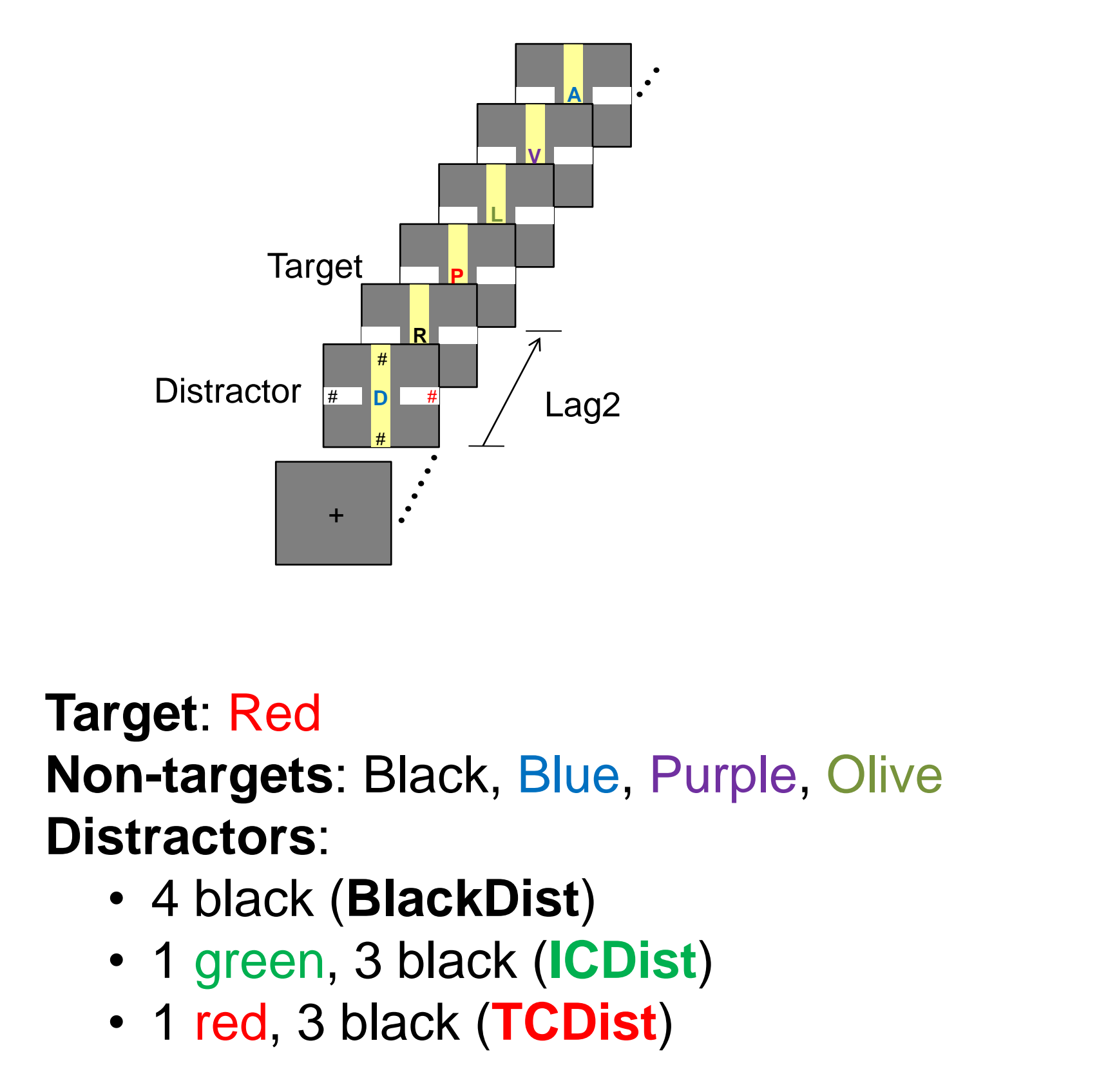
Irrelevant Color Distractor (ICDist)

## METHODS & RESULTS

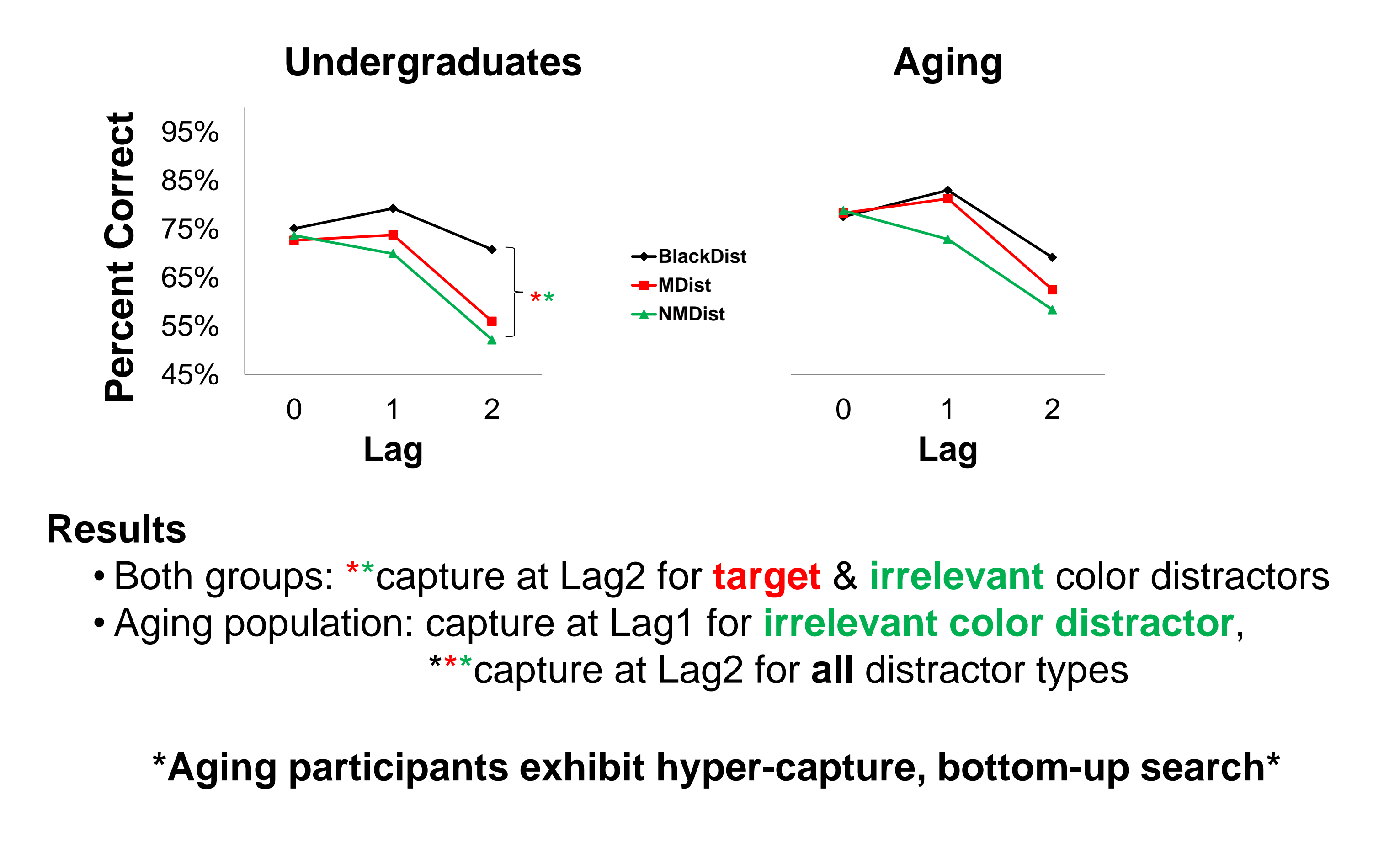
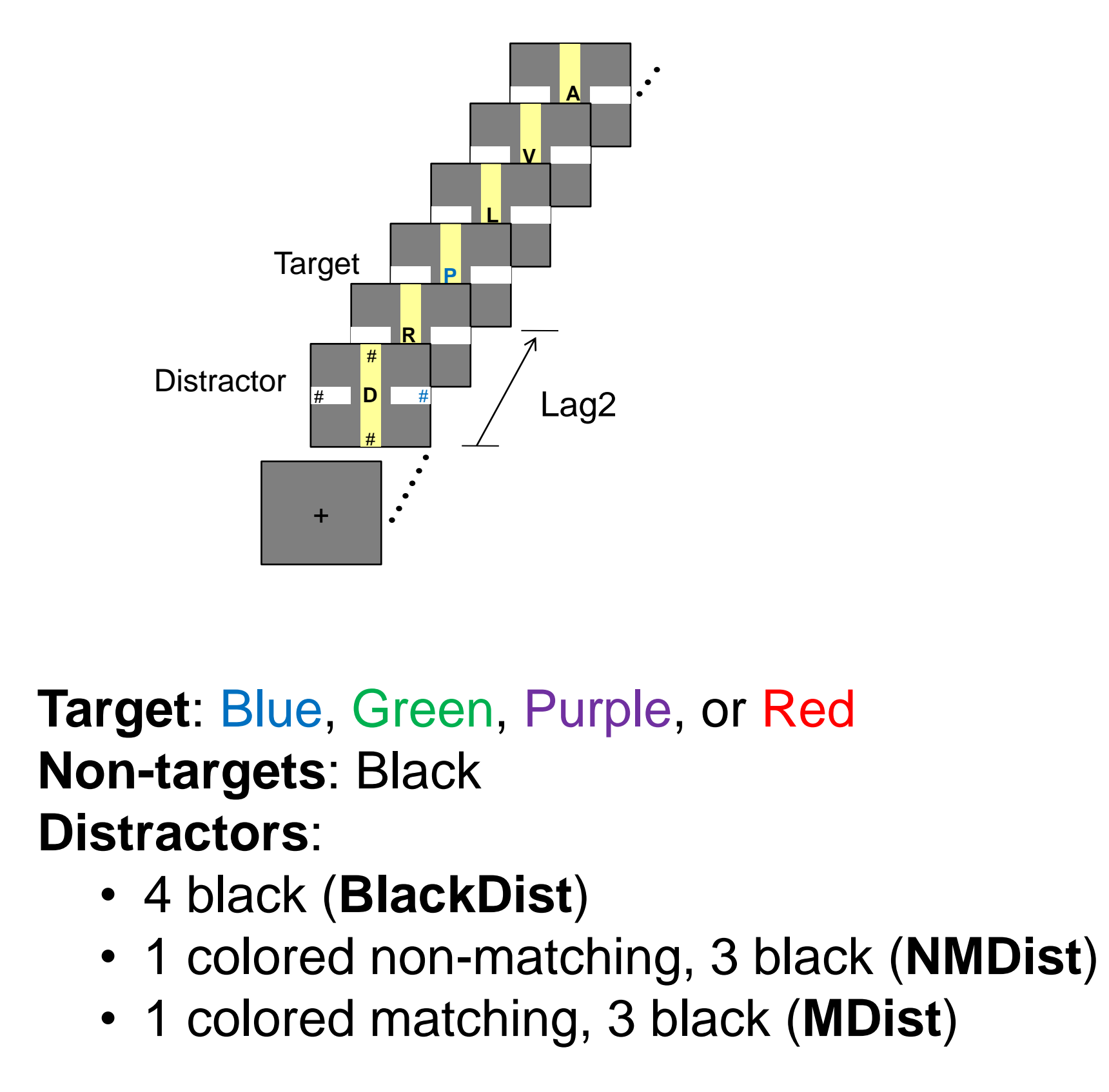
### EXPERIMENT 1: MIXTURE SEARCH MODE



### EXPERIMENT 2: FEATURE SEARCH MODE



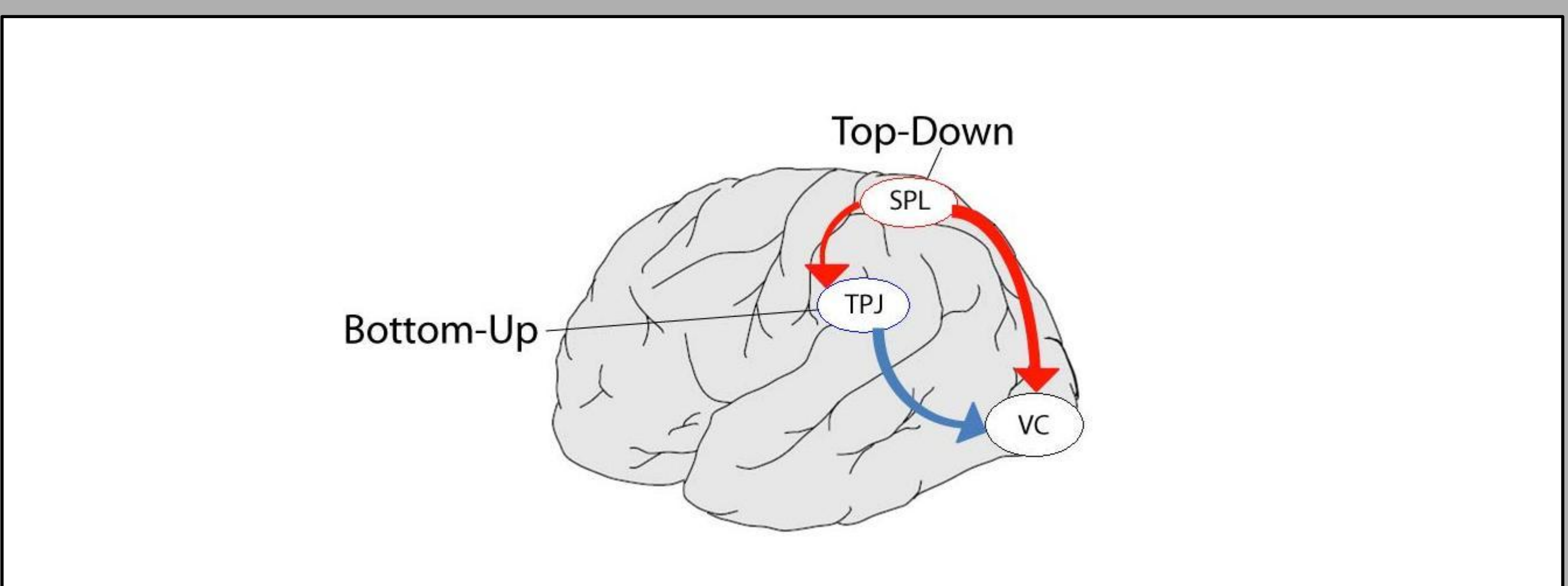
### EXPERIMENT 3: SINGLETON SEARCH MODE



## SUMMARY

- MIXTURE SEARCH**
- Undergraduates: Top-down & bottom-up searches
  - Aging: Top-down search exclusively
- FEATURE SEARCH**
- Undergraduates: Constrained top-down search
  - Aging: Hyper-capture, unconstrained top-down search
- SINGLETON SEARCH**
- Undergraduates: Bottom-up search
  - Aging: Hyper-capture, bottom-up search

## IMPLICATIONS



**Clear link established between top-down attentional control (goal-driven behavior) and the superior parietal lobule (SPL)<sup>7</sup>**

- Neglect patients with SPL lesions (sparing temporal-parietal junction, TPJ) showed hyper-capture in goal-driven (top-down) tasks<sup>7</sup>
- Similar to neglect patients, aging participants exhibit hyper-capture in a top-down task
- **Evidence of an age-related top-down deficit suggests targeted atrophy of the superior parietal lobule with aging**

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