Reduced dynamic visual capture in people with one eye

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Introduction

- Binocular disparity is necessary to accurately determine moving objects at a distance[1]
- Directional motion of visual cues influence how an auditory cue is directionally perceived (dynamic visual capture)[2]
- People who have had an eye removed experience reduced motion perception[3]

Hypothesis

- H_0: Dynamic visual capture will be equal across the 3 participating groups
- H_1: Reduced dynamic visual capture in people with one eye

Participants

Binocular Viewing Controls	10 Participants Mean Age = 26.6	
Patched Viewing Controls	10 Participants Mean Age = 25.1 3 Right Eye Patched	
Enucleate Viewing	1 Participant Age = 26 Left Eye Removed	Enucleated at age 18

All participants had normal or corrected-to normal vision

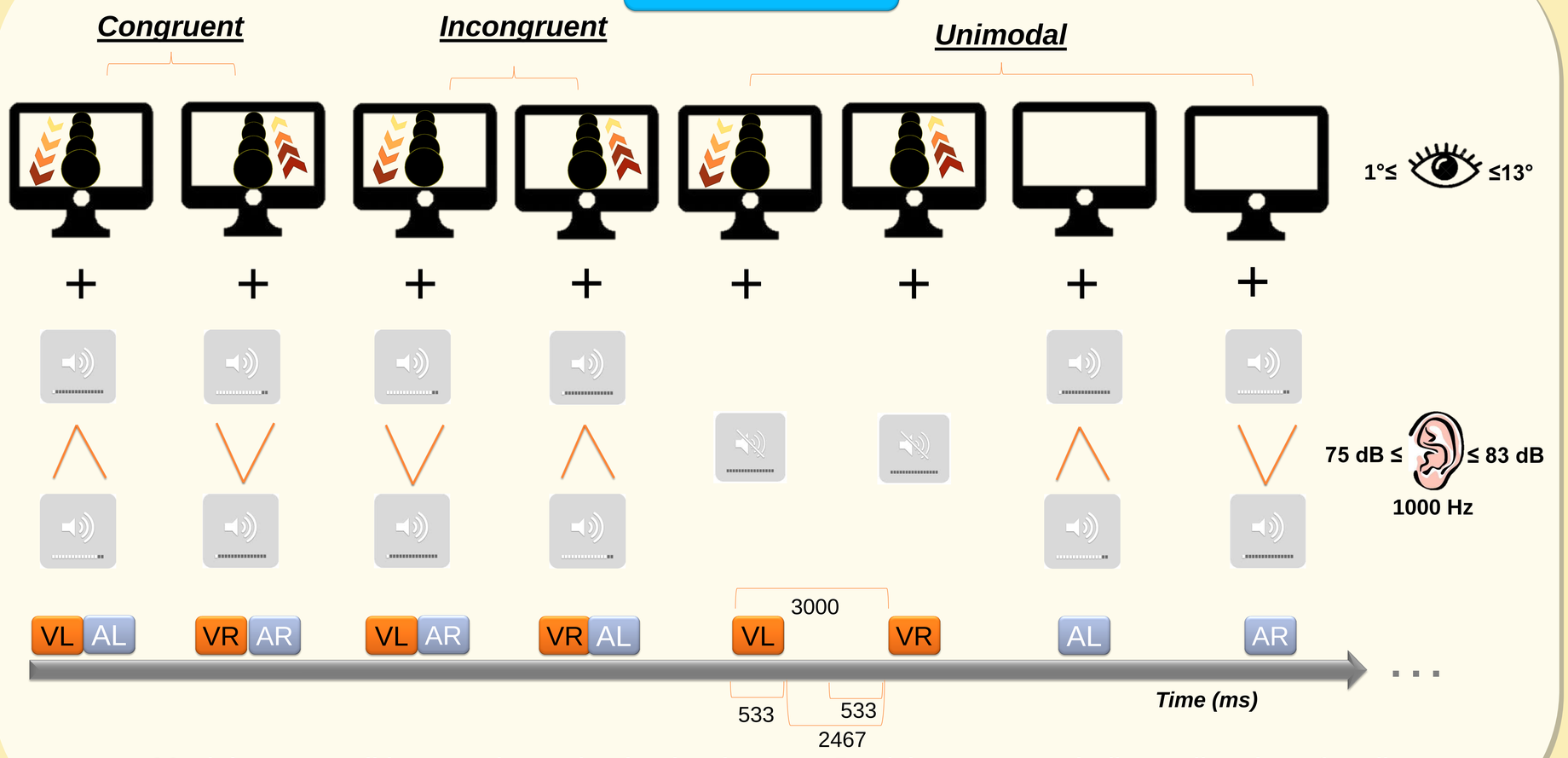
Conclusions

- Results show dynamic visual capture between patched and binocular viewing
- Less obstruction from visual dominance could contribute to better auditory discrimination with enucleated viewing (no Colavita effect[4])
- Results also hint at cortical reconfiguration in the participant with enucleated viewing

References

1. Goldstein, B. (2009). *Sensation and Perception,* pp. 237
2. Harrison, N. (2012). *Seeing and Perceiving, 25,* 71-85
3. Steeves, et.al. (2008). *Spatial Vision*, *21, 509-529*
4. Moro, S.S. & Steeves, J.K.E (2013). No Colavita effect: Increasing temporal load maintains equal auditory and visual processing in people with one eye. *Neuroscience Letters, 556*, 186-90.

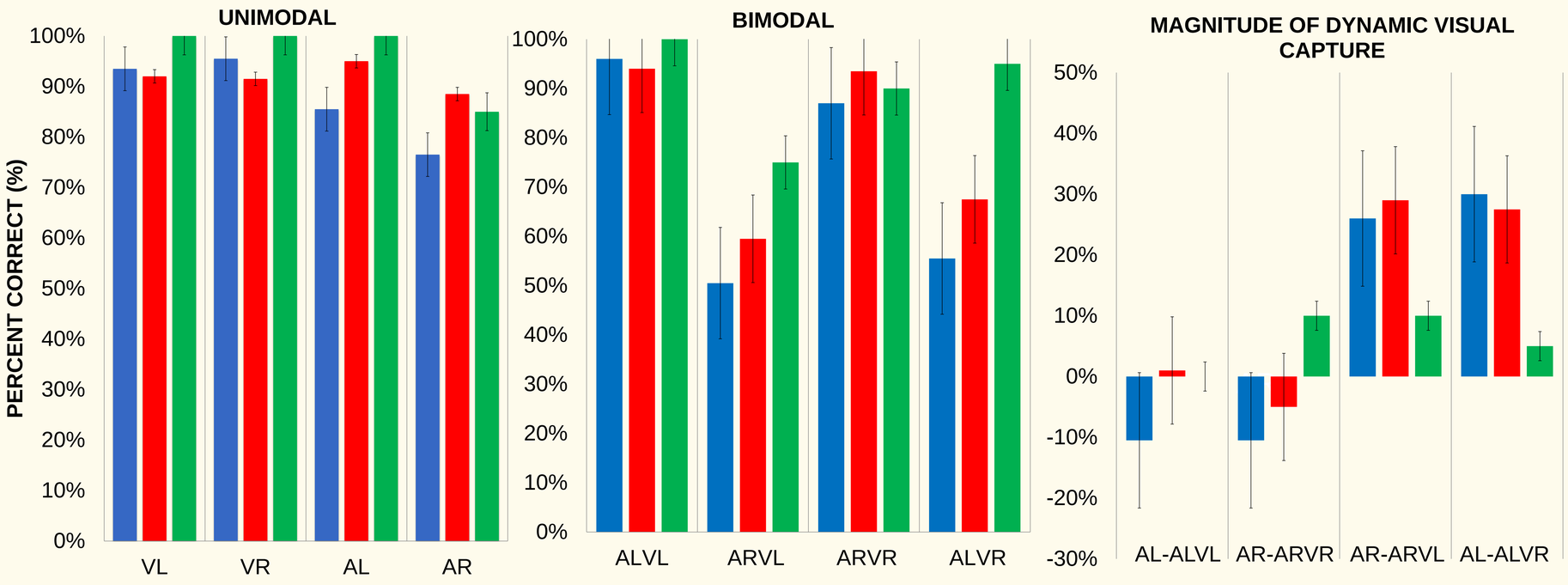
Methods



- 20 trials per condition type in randomized order
- Participants are to indicate direction of auditory cue

VL *VISUAL LOOMING* VR *VISUAL RECEDING* AL *AUDIO LOOMING* AR *AUDIO RECEDING*

Results



Binocular and patched viewers experienced a greater magnitude of dynamic visual capture

Enucleate viewing committed fewer auditory errors than control groups