

AB055. Eye movements in the dark: saccades to non-visual targets

Vanessa Harrar^{1,2}, William Le¹, Maurice Ptito², Aarlenne Z. Khan¹

¹Laboratoire de la vision, de l'attention et de l'action VISATTAC, ²Chaire de recherche Harland Sanders en Sciences de la Vision, Université de Montréal, Montréal, QC, Canada

Background: Saccades are rapid and abrupt eye movements that allow us to change the point of fixation very quickly. Saccades are generally made to visual points of interest, but we can also saccade to non-visual objects that attract our attention. While there is a plethora of studies investigating saccadic eye movements to visual targets, there is very little evidence of how eye movement planning occurs when individuals are performing eye movements to non-visual targets across different sensory modalities.

Methods: Fifteen adults with normal, or corrected to normal, vision made saccades to either visual, auditory, tactile or proprioceptive targets. In the auditory condition a speaker was positioned at one of eight locations along a circle surrounding a central fixation point. In the proprioceptive condition the participant's finger was placed at one of the eight locations. In the tactile condition participants were touched on their right forearm in one of four eccentric location, left and right of a central point. Eye movements were made in complete darkness.

Results: We compared the precision and accuracy of the eye movements to tactile, proprioceptive, and auditory targets in the dark. Overall, both precision and accuracy of movements to non-visual targets were significantly lower compared to visual targets.

Conclusions: These differences emphasize the central role of the visual system in saccade planning.

Keywords: Saccades; fixation; multisensory; perceptual shift; bias

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