

## AB063. Contrasting effects of exogenous attention on saccades and reaches

Anton Malienko, Aarlenne Zein Khan

School of Optometry, University of Montreal, Montreal, QC, Canada

**Background:** The goal of the present study was to determine whether exogenous attentional mechanisms involved in motor planning for saccades and reaches are the same for both effectors or are independent for each effector. We compared how eye and arm movement parameters, notably reaction time and amplitude, are affected by modulating exogenous attentional visual cues at different locations relative to a target.

**Methods:** Thirteen participants ( $M = 22.8$ ,  $SD = 1.5$ ) were asked to perform a task involving exogenous attentional allocation and movement planning. The participants were asked to fixate and maintain their hand at an initial position on a screen in front of them (left or right of screen centre) and then, at the disappearance of the fixation cross, perform an eye or arm movement, or both, to a target square (mirror location of fixation cross). A distractor appeared momentarily just before the appearance of the target at one of seven equidistant locations on the horizontal meridian. Saccade reaction times (SRTs), reach reaction times (RRTs) and amplitudes were calculated.

**Results:** Compared to the neutral condition (where no distractor was presented), distractors overall did not result in a facilitation of SRTs at any location (shorter SRTs), rather only a strong inhibition (longer SRTs) as a function of distractor target distance. In contrast, RRTs showed strong facilitation at the target location and less inhibition at further distances. However, both SRTs and RRTs followed a similar pattern in that RTs were shortest closer to the target position and were increasingly longer as a function of distractor target distance. In terms of amplitude, there was no effect of the distractor on reach endpoints, whereas, for saccades, there was an averaging effect of distractor position on saccade endpoints, but only for saccades with short SRTs. These effects were similar when either effector movement was performed alone or together.

**Conclusions:** These findings suggest that attentional selection mechanisms have both similar and differential effects on motor planning depending on the effectors used, providing evidence for both effector independent and effector dependent attentional selection mechanisms. This study furthers understanding of the operating mechanisms of exogenous attention on eye and arm movements and the interaction between sensory and motor systems.

**Keywords:** Attention; système moteur; mouvements oculaires; mouvements du bras

doi: 10.21037/aes.2018.AB063

**Cite this abstract as:** Malienko A, Khan AZ. Contrasting effects of exogenous attention on saccades and reaches. *Ann Eye Sci* 2018;3:AB063.