

Asymmetric Saccadic Suppression: Preserved Luminance Sensitivity along the Saccade Trajectory

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Presentation Abstract Summary Visual perception is altered during saccadic eye movements. Previous research points towards a global suppression of achromatic perception (Burr et al., 1994) which preserves visual stability across saccades. However, other research points toward an increase in perceptual capabilities, including achromatic perception (Rolfs & Carrasco, 2012) at targets of eye movements around movement onset (Deubel & Schneider, 1996). To better understand the interaction between these two phenomena, we used a detection task to densely sample changes in achromatic luminance sensitivity around the time of saccades. Human observers were asked to detect pre-, peri-, and post-saccadic probes at a range of spatial locations. Thus far, tens of thousand of trials collected from 3 observers permit a high resolution measurement of how sensitivity is affected by saccades. Consistent with previous reports (Knöll et al., 2011), we observed reduced achromatic sensitivity around the time of the saccade. However, foveal and parafoveal sensitivity were relatively preserved along the saccade trajectory, leading to an asymmetrical sensitivity in central vision. Furthermore, perception remained relatively unimpaired within a region enclosing the fovea and the saccade target. These observations suggest a mechanism that locally counteracts a global suppression during saccades in order to maintain vision along the movement trajectory.

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