

# Naturalistic viewing involves prediction: extrafoveal preview effect in visual perception

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The vast majority of studies of visual perception have measured behavioral and neural responses to unpredictable, suddenly onsetting stimuli. In natural vision, however, saccades are typically used to bring relevant information, glimpsed with extrafoveal vision, into the fovea for further processing. This raises the question of whether the extrafoveal preview influences visual object recognition in more natural viewing conditions. Here, I will focus on research from my lab showing strong effects of prediction on the post-saccadic response. In the case of face perception, a predictable preview leads to faster and better face recognition judgments and reduced face-related evoked potentials. For more simple stimuli, there is also a preview effect and, for both faces and gratings, information about the preview is present in the EEG/MEG signal prior to saccade onset and integrated with the post-saccadic information. Overall, these studies suggest that visual perception during natural viewing is influenced by the extrafoveal preview, and prediction more generally. In line with theories of active, sensorimotor perception, we would argue that studying behavioral and EEG/MEG responses under more natural viewing conditions may be necessary to understand how visual processing typically works.

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