
Effects of the color of the target as a motion cue for anticipatory smooth eye movements in humans

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Résumé

When the motion of a target is predictable, the eyes sometimes move ahead of the target during smooth pursuit. These anticipatory smooth eye movements (ASEM) may be evoked by cues signaling the future direction of the target in a two-paths tube (Kowler et al., 2014). Most of the cues tested in the literature are symbolic cues that do not require learning, such as a barrier blocking the wrong path, an arrow pointing to the future path, or a bar indicating the probability that the target will follow each of the paths (Santos & Kowler, 2017). A non-symbolic cue, the color of the target, also evoked ASEM in monkeys. Here we tested the effects of the target color as a motion cue in humans, using the conventional two-paths tube method. We hypothesized that visual cues might be less efficient to evoke ASEM than symbolic cues because they require learning, which may be difficult because the target color does not naturally impact smooth pursuit eye movements. This hypothesis is based on the concept of biological constraints on learning, postulating that signals need to naturally affect a response to be effective predictors and to come to control the response (Domjan, 2014).

Mots-Clés: smooth pursuit, anticipatory smooth eye movements, learning, visual cue

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