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Saccadic Suppression of Displacement for Moving Targets

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Saccades are ballistic eye movements which happen several times per second. Though this causes a disruption in perceptual input, we don not notice it [2]. Objects can change both their position in space and their projection on the retina, but in the everyday life we are still able to identify them as the same objects and to detect their space position change.

Nevertheless under certain conditions human ability to detect the displacement of the target is poor. In [1] it is shown that subjects are less successful at detecting target spatial displacement performed during saccade. This effect is known as Saccadic Suppression of Target Displacement (SSTD). In the same study it was found that a temporal blanking of the target after a saccade increases the ratio of subjects' right answers about the displacement. A change of target's surface feature properties also cause a similar but a weaker effect [3]. The theory of visual stability states that the visual system is biased to assume that the world remains stable during a saccade. Things mentioned above break this assumption and forces the visual system to use extra sources of information to judge about the position of the target.

In this study we check if continuous linear motion of the target would also break the stability assumption and thus restores sensitivity to the displacement. We test the data using the Linear Mixed Effect model. The results of the classic SSTD studies for blanking and different distance of target displacement are replicated both for the static and moving conditions, but we found no evidence for the influence of target's motion on the target displacement sensitivity.

Источники и литература

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