Speaker Information

Icy road ahead – gaze during perturbed walking	
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Most humans can walk effortlessly across uniform terrain even without paying much attention to it. However, most natural terrain is far from uniform, and we need visual information to maintain stable gait. In a controlled yet naturalistic virtual environment, we simulated terrain difficulty through slip-like perturbations that were either unpredictable (experiment 1) or sometimes followed visual cues (experiment 2) while recording eye and body movements using mobile eye tracking and full-body motion tracking. We quantified the distinct roles of eye and head movements for adjusting gaze on different time scales. While motor perturbations mainly influenced head movements, eye movements were primarily affected by visual cues, both immediately following slips, and – to a lesser extent – over 5-minute blocks. We find adapted gaze parameters already after the first perturbation in each block, with little transfer between blocks. In conclusion, gaze-gait interactions in experimentally perturbed naturalistic walking are adaptive, flexible, and effector-specific.