

Publication

Auditory reafferences: the influence of real-time feedback on movement control

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Auditory reafferences are real-time auditory products created by a person's own movements. Whereas the interdependency of action and perception is generally well studied, the auditory feedback channel and the influence of perceptual processes during movement execution remain largely unconsidered. We argue that movements have a rhythmic character that is closely connected to sound, making it possible to manipulate auditory reafferences online to understand their role in motor control. We examined if step sounds, occurring as a by-product of running, have an influence on the performance of a complex movement task. Twenty participants completed a hurdling task in three auditory feedback conditions: a control condition with normal auditory feedback, a white noise condition in which sound was masked, and a delayed auditory feedback condition. Overall time and kinematic data were collected. Results show that delayed auditory feedback led to a significantly slower overall time and changed kinematic parameters. Our findings complement previous investigations in a natural movement situation with non-artificial auditory cues. Our results support the existing theoretical understanding of action-perception coupling and hold potential for applied work, where naturally occurring movement sounds can be implemented in the motor learning processes.

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