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Walking modality, but not task difficulty, influences the control of dual-task walking

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Research Highlights:

- We examined the effect of walking modality (overground and treadmill walking) on dual-task walking performance
- Stride time variability is higher during overground walking compared to treadmill walking
- The direction of the dual-task cost is dependent on walking modality
- There is no difference in the perceived difficulty of the dual task between the two walking modalities

Abstract

During dual-task gait, changes in the stride-to-stride variability of stride time (STV) are suggested to represent the allocation of cognitive control to walking [1]. However, contrasting effects have been reported for overground and treadmill walking, which may be due to differences in the relative difficulty of the dual task. Here we compared the effect of overground and treadmill dual-task walking on STV in 18 healthy adults. Participants walked overground and on a treadmill for 120 s during single-task (walking only) and dual-task (walking whilst performing serial subtractions in sevens) conditions. Dual-task effects on STV, cognitive task (serial subtraction) performance and perceived task difficulty were compared between walking modalities. STV was increased during overground dual-task walking, but was unchanged during treadmill dual-task walking. There were no differences

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