

A concurrent task facilitates, not impedes, the heel-to-toe standing balance in children: The case of a dual-task benefit

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Abstract: Performance in a dual task is typically worse than performance in a single task due to the sharing of limited cognitive capacity. The present study found the opposite results when the task involved postural control in non-typical standing. Thirty-six children aged 4-9 years stood on a force plate for 10 seconds with a normal or heel-to-toe stance. In the dual-task condition, they also performed an auditory or a visuospatial task. They were instructed to achieve high accuracy on the concurrent task while maintaining balance. Standing balance, expressed in terms of the velocity and the trajectory of the center of pressure on the force plate, was significantly better in the dual-task than in the single-task condition. Performances on the concurrent tasks were also better in the dual-task condition. The overall dual-task benefits are attributed to the increased deployment of cognitive capacity specially called for by the balance challenge in non-typical standing.