

Control of adaptive locomotion in older adults

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Despite the significant advancement in understanding adaptive locomotion in older adults, there are important gaps to be addressed. The investigation of walking adaptations to avoid stepping on a particular region considered unsafe/undesirable or the investigation of walking modifications to step on surfaces that cannot be avoided such as sloped terrains and stairs have been prominent in the literature about gait control. However, adaptive locomotion is not restricted to these strategies. Adaptive locomotion also involves the adjustments to perform upper limbs tasks, such as manipulative actions successfully.

Most recently, I have been using the task of reaching-to-grasp an object while walking to investigate adaptive locomotion in older adults, particularly involving upper and lower limb coordination and control. During my talk, I will present evidence of the complex functional reorganization of the typical walking pattern to ensure body stability and the postural configuration necessary to perform this combined task in older adults, particularly the ones who have a history of falls. This combined task also allows the assessment of the influence of walking on the reaching-to-grasp action. I will discuss evidence that walking affects both reaching and grasping components in young and older adults.