Research on multiple sclerosis, gait to lead to more effective fall prevention

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People who are diagnosed with multiple sclerosis (MS), a chronic neurological disease that affects the body's central nervous system, often experience difficulty in maintaining body balance while walking and are

at a greater risk of falling.

Dean's Doctoral Fellow Meng-Wei Lin and CEHD Assistant Professor Feng Yang conducted a study published in the *Journal of Biomechanics* to better understand gait stability for people with MS and use this knowledge to design more effective interventions for preventing falls.

Twenty people diagnosed with MS and 25 healthy individuals participated in the study, which used an eight-camera system to capture data on each participant as they walked a designated 7.5-meter distance three times.

Their results show that people with MS demonstrate a more cautious walking pattern and took shorter steps to accommodate their slow gait speed and maintain their balance.

"Our study confirmed that people with MS indeed demonstrate impairments in maintaining dynamic gait stability in comparison with their healthy counterparts," Lin said. "Our results also revealed that people with MS develop strategies to accommodate impairments in dynamic balance."

This research has meaningful implications for doctors and other health care professionals who work with people diagnosed with MS. "This study leads us to understand that step length and foot landing angle are two significant factors for maintaining body dynamic balance in people with MS, so they could be two targets for gait rehabilitation," Lin explained.

More information: Meng-Wei Lin et al. Influence of multiple sclerosis on dynamic gait stability, *Journal of Biomechanics* (2020). DOI: 10.1016/j.jbiomech.2020.109827