

## Effects of Acupuncture Treatment in Gait Parameters in Parkinson's Disease

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**Abstract :** Introduction: Gait disorders are one of the symptoms that have severe implications on the quality of life in Parkinson's disease (PD). Currently, there is no therapy to reverse or treat this condition. None of the drugs used in conventional medical treatment is entirely efficient, and all have a high incidence of side effects. Acupuncture treatment is believed to improve motor ability, but there is still little scientific evidence in individuals with PD. Aim: The aim of the study is to investigate the acute effect of acupuncture on gait parameters in Parkinson's disease. Methods: This is a randomized and controlled crossover study. The same individual patient was part of both the experimental (real acupuncture) and control group (false acupuncture/sham), and the sequence was randomized. Gait parameters were measured at two different moments, before and after treatment, using four force platforms as well as the collection of 3D markers positions taken by 11 cameras. Images were quantitatively analyzed using Qualisys Track Manager software that let us extract data related to the quality of gait and balance. Seven patients with the diagnosis of Parkinson's disease were included in the study. Results: Statistically significant differences were found in gait speed ( $p = 0.016$ ), gait cadence ( $p = 0.006$ ), support base width ( $p = 0.0001$ ), medio-lateral oscillation ( $p = 0.017$ ), left-right step length ( $p = 0.0002$ ), and stride length: right-right ( $p = 0.0000$ ) and left-left ( $p = 0.0018$ ), time of left support phase ( $p = 0.029$ ), right support phase ( $p = 0.025$ ) and double support phase ( $p = 0.015$ ), between the initial and final moments for the experimental group. Differences in right-left stride length were found for both groups. Conclusion: Our results show that acupuncture could enhance gait in Parkinson's disease patients. Deep research involving a larger number of volunteers should be accomplished to validate these encouraging findings.

**Keywords :** acupuncture, traditional Chinese medicine, Parkinson's disease, gait

**Conference Title :** ICNN 2022 : International Conference on Neurology and Neurosurgery

**Conference Location :** New York, United States

**Conference Dates :** January 28-29, 2022