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**Effects of rhythmic auditory cueing on stepping in place in patients with Parkinson's disease****Hsiu Yun Chang***National Taiwan University, Taiwan*

Patients suffered from PD demonstrate internal rhythm dysfunction, thus lead to difficulty and irregularity in rhythmic movements such as ambulation. In the clinical setting, auditory cues are often used to alleviate the rhythmic movement symptoms. Stepping in place (SIP) is an alternative exercise program for the patients who do not have sufficient space or lack of enough balance ability to perform ambulation training. However, few studies discussed the effects of SIP movement and the differential effects on patients with or without freezing of gait. In this cross-over study, 21 patients with PD were recruited. Each participant received two experiments: (1) Stepping in place with concurrent auditory cues (AC condition), (2) Stepping in place without any auditory cue (NC condition). In each experiment, subjects were asked to step 50 steps per session, totally 10 sessions. The rhythmic auditory cue was set at 110% of step frequency. Assessments consisted of stepping in place test and walking. Wilcoxon signed-rank test was applied for within group comparison and Mann-Whitney U test was used for between-group comparison. The results demonstrated that the stepping variability decreased significantly (AC:  $p=0.033$ , NC:  $p=0.009$ ) and the walking cadence increased (AC:  $p=0.019$ , NC:  $p=0.0023$ ) no matter there were auditory cues or not. The freezers further showed decreased walking variability in both conditions. Therefore, SIP training may be beneficial to patients with PD, especially the freezers. The dosage of auditory cueing SIP training should be further investigated.

**Biography**

Hsiu Yun Chang has completed her Master's degree from National Taiwan University, Taiwan. She is specialized in Neurological Physical Therapy, especially the ambulation problems and auditory cueing in PD. She is currently a Research Assistant in National Taiwan University and In-Charge of the study about transcranial direct current stimulation.

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