

Tai Chi for Balance and Falls Incidence in Neurological Disorders: A Systematic Review and Meta-Analysis

Objective: To evaluate the effect of Tai Chi for improving balance and reducing falls incidence in people with neurological disorders.

Data sources: Databases AMED, Embase, Web of science, SCOPUS, EBSCO, and Medline from their inception to August 2016.

Study selection: Randomized controlled trials of Tai Chi compared with active or no treatment control measuring balance with the Berg Balance Scale (BBS) or the Timed Up and Go test (TUG) and falls incidence as number of falls in people with neurological disorders were included.

Data extraction: Two reviewers independently extracted data and assessed methodological quality using PEDro and quality of evidence using the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) tool.

Data synthesis: Nine studies involving 575 participants were reviewed. Seven studies were tested in people with Parkinson's disease and two were among stroke survivors. Of the nine included studies, six were of high methodological quality and three of low quality. The GRADE system provided high quality evidence for TUG and number of falls and low to moderate quality evidence for BBS in Parkinson's disease. The GRADE quality for TUG for stroke was moderate. Meta-analyses revealed statistically significant improvements in balance measured with TUG (WMD, -2.13 (95% CI -3.26,-1.00) p=0.0002) and reduced falls incidence (OR 0.47 (95% CI 0.29, 0.77, p=0.003) in Parkinson's disease. There was no significant effect of Tai Chi for balance measured with BBS (WMD 4.21 (CI 95% -1.98,10.39) p=0.18) in Parkinson's disease and TUG (WMD 0.45 (95% CI -3.43,2.54) p=0.77) in stroke.

Conclusion: Tai Chi is effective in reducing falls incidence in Parkinson's disease. No effect of Tai Chi was identified for improving balance in people with stroke.

Key words: Cerebellar ataxia, Nervous System Diseases, Tai Ji, Accidental Falls, Meta-Analysis