

Effectiveness of resistance training on muscle strength and physical function in people with Parkinson's disease: a systematic review and meta-analysis.

[Chung CL](#)¹, [Thilarajah S](#)², [Tan D](#)³.

[Author information](#)

Abstract

OBJECTIVES:

To systematically review the evidence investigating the effectiveness of resistance training on strength and physical function in people with Parkinson's disease.

DATA SOURCES:

Seven electronic databases (COCHRANE, CINAHL, Medline ISI, Psycinfo, Scopus, Web of Science ISI and Embase) were systematically searched for full-text articles published in English between 1946 and November 2014 using relevant search terms.

REVIEW METHODS:

Only randomized controlled trials investigating the effects of resistance training on muscle strength and physical function in people with Parkinson's disease were considered. The PEDro scale was used to assess study quality. Studies with similar outcomes were pooled by calculating standardized mean differences (SMD) using fixed or random effects model, depending on study heterogeneity.

RESULTS:

Seven studies, comprising of 401 participants with early to advanced disease (Hoehn & Yahr stage 1 to 4), were included. The median quality score was 6/10. The meta-analyses demonstrated significant SMD in favour of resistance training compared to non-resistance training or no intervention controls for muscle strength (0.61; 95% CI, 0.35 to 0.87; $P < 0.001$), balance (0.36; 95% CI, 0.08 to 0.64; $P = 0.01$) and parkinsonian motor symptoms (0.48; 95% CI, 0.21 to 0.75; $P < 0.001$) but not for gait, balance confidence and quality of life.

CONCLUSION:

This review demonstrates that moderate intensity progressive resistance training, 2-3 times per week over 8-10 weeks can result in significant strength, balance and motor symptoms gains in people with early to moderate Parkinson's disease.