Effects of perturbation-based training on balance and falls in people with Parkinson's disease: A systematic review

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Background: The fall incidence in people with Parkinson's disease (PD) is high. Balance training has been shown to be an effective intervention to reduce falls in this population. Among all types of balance training, perturbation-based training (PBT) has been shown to be effective in improving balance and reducing falls in healthy older adults and people with different neurological conditions. The effects of PBT on balance and falls in people with PD have not been systematically ascertained.

Purpose: To evaluate the effects of PBT on balance and falls in people with PD.

Methods: Studies were identified with searches in the PubMed, EMBASE, CINAHL, COCHRANE, Medline, and PsyINFO. Randomized controlled trials that evaluated the effects of PBT compared to a control condition on improving balance, enhancing balance confidence, or reducing falls in people with a diagnosis of PD were included.

Results: Six studies (n = 243) were included in this systematic review. Three studies showed that the PBT significantly improved balance measured by single leg standing and limit of stability in people with PD. One out of 2 studies reported a significant post-intervention improvement in balance confidence in this population. One out of 3 studies showed a significant reduction in falls in people with PD up to 6 months after the intervention.

Conclusion: The PBT may improve balance, enhance balance confidence, and reduce falls in people with PD. Further research is required to inform clinicians and researchers which type of PBT is the most effective on balance and falls in this population.