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Balance rehabilitation for people with mild to moderate Parkinson's disease: A scoping review of dual-task training interventions and outcome measures

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Abstract

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Objectives: To scope Dual-Task Training (DTT) intervention types, combinations, reported superiority of task type and perspectives of DTT, along with balance outcome measures that have been used to evaluate effectiveness in the literature to date.

Background: Balance dysfunction is a frequently encountered problem for people with Parkinson's Disease (PD) with mild to moderate disease severity [1]. This impacts upon many activities of daily life involving a bipedal upright position at both functional and participation levels. Reports suggest that DTT is a physiotherapy approach that can effectively improve balance [2]. To inform the development of guidelines, the availability of evidence regarding DTT parameters and superiority need to be scoped.

Methods: A protocol based on the PRISMA Extension for Scoping Reviews [3] fully details the methods [4]. Keywords and index terms were identified in a search of PubMed and CINAHL before conducting a structured search strategy of text words (PubMed, CINAHL, MEDLINE databases, OpenGrey and Google Scholar). At the full-text screen stage, reference lists were searched for additional studies. Three reviewers screened the titles and abstracts of articles independently against inclusion and exclusion criteria and analysed eligible full text articles, two extracted data and conducted narrative charting.

Results: 31 articles (of 189 screened) met the criteria for inclusion in the review; 4 systematic reviews, 12 RCTs, 14 non-powered clinical trials and a qualitative study. There is no standard defined approach for DTT evident in the literature: DTT varies in terms of task types, combinations and progression and interventions involve a range of frequencies, session and course durations. The most frequently cited balance outcome measure is the Mini-BESTest [5] but over 20 different primary measures are reported in clinical trials to date. Only one study explored participants' perceptions of DTT. Only one study specifically examines the superiority of DTT types relative to balance.

Conclusion: Further qualitative studies are needed to explore participants' perceptions of DTT. There is a clear need for superiority studies involving feasible and acceptable RCT designs to determine optimal effectiveness of DTT protocols to ultimately guide evidence-based practice.

