
Impact of physical therapy for Parkinson's disease: a critical review of the literature

Kwakkel G, de Goede C J, van Wegen E E

CRD summary

This review assessed the impact of physical therapy on patients with Parkinson's Disease and concluded that the tasks included in the interventions were not generalisable. Further research was required. Studies were of limited quality and were diverse. The authors' appeared to take these factors into consideration and their conclusions are likely to be reliable.

Authors' objectives

To assess the impact of physical therapy on patients with Parkinson's disease.

Searching

MEDLINE, CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, DARE, PEDro, EMBASE and DocOnline were searched up to August 2007 for articles in English, German and Dutch. Search terms were reported. Cross-references, recommended references, bibliographies of review articles, narrative reviews and published conference proceedings were searched and citations of article references were located.

Study selection

Randomised controlled trials (RCTs) that assessed physical therapy interventions (treatment type) in patients with Parkinson's disease were eligible for inclusion.

Included RCTs reported on six specific core areas of physical therapy: transfers (such as getting in and out of bed); posture and balance control; gait and gait-related activities; reaching and grasping; physical condition; and other treatments. Exercises within each core area varied. Mean ages of patients ranged between 56.8 and 72 years. Duration of Parkinson's disease and treatment intensity varied. Where reported, most control treatments included exercise and often involved many elements used in the experimental intervention. Outcomes differed among studies, but most assessed multiple outcomes.

Two reviewers independently screened studies for relevance.

Assessment of study quality

Two reviewers independently assessed RCTs for methodological quality using the PEDro scale, including criteria on randomisation, blinding, follow-up and intention-to-treat analysis. Scores of 4 or more were classed as high quality and scores of 3 or less were classed as low quality. Disagreements were resolved by consensus or through referral to a third reviewer if necessary.

Data extraction

The authors stated neither how the data were extracted nor how many reviewers performed the data extraction.

Methods of synthesis

Data were presented as a narrative synthesis and in tables by core areas of physical therapy. Posture and balance control and gait were combined into gait and gait-related activities; physical condition and inactivity were combined into physical condition.

Results of the review

Twenty three RCTs (n=1,063) were included in the review. Sample sizes for treatment groups ranged from three to 77 participants. Quality scores ranged from low to high (3 to 8 points). Methodological flaws included lack of blinding and intention-to-treat analysis, inadequate follow-up and small sample size.

Benefits were reported in patients with Parkinson's disease for task-specific training to improve postural control and balance (nine studies), gait and gait-related activities (three studies) and improvement in physical condition (five

studies). One study presented moderate evidence that physical therapy improved transfers. There were no studies included for reaching and grasping. Results for other treatments were reported in the review.

Authors' conclusions

The tasks included in the interventions did not generalise to other activities not included in the programmes. Further research was required to gain greater knowledge and understanding of Parkinson's disease and physical therapy interventions.

CRD commentary

The review question was clear and was supported by appropriate criteria for participants and study design. Criteria for interventions were broad and outcome criteria were not specified. A comprehensive search of the literature was undertaken, but as articles were restricted by language it was possible that language bias may have been introduced. Validity was assessed using a reliable tool and the review processes for study selection and validity assessment were clear. However, as the authors did not make it explicit how data were extracted, reviewer error and bias could not be ruled out. In view of the diversity among studies, a narrative synthesis was appropriate. However, it was difficult to evaluate the evidence due to often apparently limited differences between experimental interventions and controls, and the interventions assessed were not generalisable. Given the above considerations, the authors' conclusions appear appropriate and are likely to be reliable.

Implications of the review for practice and research

Practice: The authors stated that it was unclear how the significant improvements reported in this review affected strength, balance scores, gait and activities of daily living (ADLs), as well as the impact on patients' safety (in terms of full avoidance).

Research: The authors stated that future studies should be larger, of higher quality and should differentiate clearly between experimental and control interventions and assess meaningful changes. Studies should aim to improve knowledge and understanding of the therapies and outcomes and their impact on Parkinson's disease patients, and identify optimal schedules for physical therapy. The cost effects of interventions required investigation. Further studies in very mild, more severe Parkinson's disease and Parkinson-related disorders were also warranted.

Funding

European Commission (The RESCUE project) grand number qrlt-2001-00120. Part funding received from The International Parkinson Foundation.

Bibliographic details

Kwakkel G, de Goede C J, van Wegen E E. Impact of physical therapy for Parkinson's disease: a critical review of the literature. *Parkinsonism and Related Disorders* 2007; 13 (Supplement 3): S478-S487

Original Paper URL

[http://www.prd-journal.com/article/S1353-8020\(08\)70053-1/abstract](http://www.prd-journal.com/article/S1353-8020(08)70053-1/abstract)

Other publications of related interest

de Goede CJ, Keus SH, Kwakkel G, Wagenaar RC. The effects of physical therapy in Parkinson's disease: a research synthesis. *Arch Phys Med Rehabil* 2001;82:509-15.

Indexing Status

Subject indexing assigned by CRD

MeSH

Activities of Daily Living; Breathing Exercises; Exercise Therapy; Gait; Humans; Parkinson Disease; Physical Therapy Modalities; Relaxation Therapy

AccessionNumber

12008105348

Date bibliographic record published

23/12/2008

Date abstract record published

02/09/2009

Record Status

This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.