Enabling functional independence in Parkinson's disease: update on occupational therapy intervention
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CRD summary
The review concluded that evidence suggested occupational therapy interventions produced improvements in motor function and quality of life for the duration of therapy in patients with Parkinson's disease. The author's conclusions reflected the evidence presented but, due to weaknesses in the review methodology, lack of reporting of outcomes data, and small sample sizes, they should be viewed with caution.

Authors' objectives
To assess the effectiveness of occupational therapy interventions aimed at enabling functional independence in patients with Parkinson's disease.

Searching
CINAHL, the Cochrane Library and MEDLINE were searched from 1997 to 2008; search terms were reported.

Study selection
Randomised and quasi-randomised controlled trials that evaluated the effectiveness of occupational therapy and related treatments in individuals with Parkinson's disease were eligible for the review. Studies that reported training of functional activities (mobility, transfers) with or without the use of external visual and auditory cues, or including occupational therapy as part of a multidisciplinary intervention were eligible. Studies of single session experiments were excluded.

Interventions in the included studies varied widely including: occupational therapy task related training including activities for daily living, mobility, fatigue management and handicrafts; functional training (gait, posture training) with and without external and auditory cues; and occupational therapy as part of a multidisciplinary intervention including medication, and educational activities. Most studies conducted therapy on an individual basis. Duration of therapy ranged from three to eight weeks; the number of sessions ranged from four to 18. Participants in the included studies had disease stage Hoehn and Yahr 1 to 4. One study included patients with multiple system atrophy, but most patients demonstrated primary Parkinsonian features. Outcomes included activities for daily living, quality of life, mobility and mental health; these were assessed using a wide variety of measurements (details reported in the review).

The author did not state how studies were selected for inclusion.

Assessment of study quality
The author did not state that a formal validity assessment was conducted, although some aspects of study design were reported in the review.

Data extraction
Data on improvements in outcome measures and level of evidence grade were extracted.

The author did not state how many reviewers performed the extraction.

Methods of synthesis
Studies were categorised as occupational therapy task-related training, functional training with external visual or auditory cues, and occupational therapy as part of a multidisciplinary intervention; they were combined in a narrative synthesis.

Results of the review
Eight studies (approximately 523 participants, range 17 to 153) were included in the review: four randomised controlled trials (RCTs) with cross-over design, one parallel group RCT, two controlled pre-test/post-test studies, and one uncontrolled pre-test/post-test study. Three studies were reported as single blind. Follow-up ranged from the end of treatment to 48 weeks.

**Occupational therapy task-related training** (three studies): All three studies reported improvement in performance of activities for daily living for the treatment group by the end of the trial period. One study demonstrated improvement beyond therapy, but no statistical analysis was reported.

**Functional training with external visual or auditory cues** (two RCTs): One cross-over RCT reported short-term benefits of cueing on gait, but this did not last beyond the end of therapy (three weeks). One RCT reported that improvement in activities for daily living and motor skills were maintained beyond therapy for the treatment group at six weeks.

**Occupational therapy as part of multidisciplinary intervention** (three studies): One cross-over RCT reported improvements in gait and functional performance for the treatment group at six weeks. One study reported a trend towards improved performance, but a decline in mental health for patient and caregiver. One uncontrolled study reported improvements in mobility, speech, depression and quality of life at four weeks.

### Authors' conclusions

There was evidence to suggest that occupational therapy treatment produced improvements in motor function and quality of life for the duration of therapy in patients with Parkinson's disease.

### CRD commentary

The review question was clear, although only inclusion criteria for study design, intervention and participants were stated. Several relevant sources were searched, but it appeared that no efforts were made to locate unpublished studies and it was unclear whether language restrictions were applied; therefore, there may be the potential for language and publication bias. Methods used to select studies or extract data were not reported, so it was unknown whether efforts were taken to reduce reviewer error and bias.

No formal validity assessment was undertaken, although some study characteristics and levels of evidence were reported. Inclusion criteria stated that randomised and quasi-randomised studies would be included, but the author also chose to include an uncontrolled study in the synthesis. Single group studies are liable to multiple biases. Some details of the included studies were reported, but outcomes were reported without supporting data or levels of statistical significance, so it was not possible to verify the findings reported in the review.

The author's conclusions reflected the evidence presented, but due to apparent weaknesses in the review methodology, lack of validity assessment and reporting of outcomes data, together with small sample sizes, the conclusions should be viewed with caution.

### Implications of the review for practice and research

**Practice:** The author stated that the greatest benefit is likely to result from a combination of therapies (occupational therapy, physical and speech therapy) which are structured in a contextually appropriate manner.

**Research:** The author stated that further randomised controlled trials are needed which should adhere to standard practice patterns regarding number of sessions of therapy and outcome measures. In addition, outcome measures should be consistent to enable comparison across studies.

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