

Parkinson's Disease

Current Awareness

Bulletin

August 2014

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Jason Ovens
Head of Library & Knowledge Services

Title: Exploring experiences of physical activity among people with Alzheimer's disease and their spouse carers: a qualitative study.

Citation: Physiotherapy, June 2014, vol./is. 100/2(169-75), 0031-9406;1873-1465 (2014 Jun)

Author(s): Malthouse R, Fox F

Title: Active living: what works.

Citation: Journal of Dementia Care, 01 July 2014, vol./is. 22/4(10-11), 13518372

Author(s): Malthouse, Rachael, Fox, Fiona

Physiotherapy in Parkinson's disease

Overview: Parkinson's disease is a progressive neuro-degenerative condition resulting from the loss of the dopamine-containing cells of the substantia nigra. Its main symptoms include hypokinesia, bradykinesia, rigidity, and resting tremor.

Parkinson's disease is a common condition among older people, with a prevalence of 1–2% in people older than 65 years ([Bandolier 2003](#)). Management is usually centred on drug treatment (such as levodopa); however, even with optimal therapy, patients experience a decline in body function and daily activities ([Nijkrake et al. 2007](#)). Multidisciplinary management, including physiotherapy, may provide additional means of maximising functional ability.

See the NICE Evidence Services topic page on [Parkinson's disease](#) for a general overview of this condition.

Current advice: The NICE guideline on [Parkinson's disease](#) (currently [being updated](#)) recommends that physiotherapy should be available for people with Parkinson's disease. Particular consideration should be given to:

- gait re-education, improvement of balance, and flexibility
- enhancement of aerobic capacity
- improvement of movement initiation
- improvement of functional independence, including mobility and activities of daily living
- provision of advice regarding safety in the home environment.

The NICE Pathway on [Parkinson's disease](#) brings together all related NICE guidelines and associated products on the condition in a set of interactive topic-based diagrams.

New evidence: A Cochrane review by [Tomlinson et al. \(2013\)](#) assessed the effectiveness of physiotherapy versus placebo or no intervention in Parkinson's disease. Randomised controlled trials (RCTs) in patients of all ages, on any drug therapy, receiving physiotherapy of any duration, were included. A wide range of physiotherapy interventions were examined (including those not delivered by a physiotherapist), such as general physiotherapy, exercise, treadmill training, dance,

martial arts and cueing. Cueing uses external rhythms to aid movement; for example, a cueing device may emit a regular beep or flash of light for the patient to focus on. A total of 39 trials (n=1827) were identified. Most trials assessed participants at baseline and immediately or shortly after the physiotherapy period (which ranged from 2 to 52 weeks).

Mean differences between treatment groups significantly in favour of physiotherapy (versus no intervention) were seen for:

- Gait outcomes: speed (0.04 m/s, 95% confidence interval [CI] 0.02 to 0.06 m/s, $p=0.00022$; 15 RCTs, $n=814$); 2-minute or 6-minute walk test (13.37 m, 95% CI 0.55 to 26.20 m, $p=0.04$; 6 RCTs, $n=242$); and Freezing of Gait Questionnaire (-1.41 , 95% CI -2.63 to -0.19 , $p=0.024$; 4 RCTs, $n=298$).
- Functional mobility and balance outcomes: Timed Up and Go Test (-0.63 seconds, 95% CI -1.05 to -0.21 seconds, $p=0.0032$; 9 RCTs, $n=639$), Functional Reach Test (2.16 cm, 95% CI 0.89 to 3.43 cm, $p=0.00085$; 4 RCTs, $n=393$); and Berg Balance Scale (3.71 points, 95% CI 2.30 to 5.11 points, $p<0.00001$; 5 RCTs, $n=385$).
- Clinician-rated disability: Unified Parkinson's Disease Rating Scale (UPDRS) – total score (-6.15 points, 95% CI -8.57 to -3.73 points, $p<0.00001$; 3 RCTs, $n=207$).

The authors noted that most of these differences between groups were small, but for some outcomes (such as speed, Berg Balance Scale and UPDRS) the differences were at, or approaching, what are considered minimal clinically important changes. No differences between treatments were seen for falls or for patient-rated quality of life.

The 1 study reporting adverse events stated that these events were rare. The treatment effect did not appear to differ across the different physiotherapy interventions; however, this was based on indirect comparisons.

Commentary: "This study is the first robust meta-analysis showing results in favour of physiotherapy in Parkinson's disease. Particularly important are the effects on gait and balance. These symptoms of Parkinson's disease are resistant to drug therapy and underpinned in part by non-dopaminergic mechanisms, for which there are no current pharmacological strategies. Furthermore, the effect sizes for gait and balance outcomes are clinically relevant for selected interventions and characteristics. Given that the results of this study show some benefits with physiotherapy, the NICE recommendations for early and ongoing access to physiotherapy are even more important. In addition, the cumulative effect of physiotherapy and medication together will be greater than medication alone on the symptomatic burden of disease and its secondary consequences.

"Questions remain as to which therapy is best, how much and how often, and the evidence for reduction of falls is lacking. There is no evidence for improved quality of life. The analysis also only addresses the short-term effects of therapy. However, Parkinson's disease is a progressive condition and treatment is aimed at management, suggesting therapies should be continued long term and their longer term impact also addressed.

"Given the improvements in mobility, physiotherapy is likely to have benefits for patients in independent living and could potentially reduce resource requirement – although this requires verification. The challenge now is to implement the evidence

base within the constraints of the current health and social care system." –
**Professor Lynn Rochester, Professor of Human Movement Science, Institute
for Ageing and Health, Newcastle University**

Title: The effects of whole body vibration on mobility and balance in Parkinson disease: a systematic review.

Citation: Iranian Journal of Medical Sciences, July 2014, vol./is. 39/4(318-26), 0253-0716;0253-0716 (2014 Jul)

Author(s): Sharififar S, Coronado RA, Romero S, Azari H, Thigpen M

Abstract: Whole body vibration (WBV) is a contemporary treatment modality that holds promise as an exercise training method in health-compromised individuals. A growing number of studies on individuals with Parkinson Disease are examining whether WBV improves balance and functional mobility. However, interpreting WBV studies is challenging since there is variability in the manner in which WBV intervention is conducted. The primary goal of this systematic review was to investigate the effect of WBV on improving mobility and balance as measured by a battery of clinical tests, in patients with Parkinson disease. Studies based on WBV parameters were characterized and a systematic search of peer-reviewed literature in five major databases was conducted. Randomized-controlled trials investigating the effects of WBV in patients with a Parkinson diagnosis and no cognitive impairment were included. A total of six publications met the inclusion criteria. Overall, studies demonstrated mixed results in favor of WBV for improving balance or mobility. The majority of studies seem to suggest a favorable benefit following WBV for mobility and balance, but not when compared to other active intervention or placebo. There was variability in the manner in which WBV intervention was applied. Variations among the six studies included: duration of intervention and rest, follow-up period, type of control groups, frequency of vibration, number of treatment sessions and sex distribution of subjects. Future research is needed to investigate the effects of different types of equipment and treatment dosage in individuals with Parkinson disease.

Full Text:

Available from *ProQuest* in [Iranian Journal of Medical Sciences](#)

Title: Skill Training for Swallowing Rehabilitation in Patients With Parkinson's Disease.

Citation: Archives of Physical Medicine & Rehabilitation, 01 July 2014, vol./is. 95/7(1374-1382), 00039993

Author(s): Athukorala, Ruvini P., Jones, Richard D., Sella, Oshrat, Huckabee, Maggie-Lee

Abstract: Objective: To examine the effects of skill training on swallowing in individuals with dysphagia secondary to Parkinson's disease (PD) and to explore skill retention after treatment termination. Design: Within-subject pilot study with follow-up after 2 weeks of treatment and after a 2-week nontreatment period. Setting: Clinic in a research institute. Participants: Patients (N=10; mean age, 67.4y) included 3 women (mean Hoehn and Yahr score, 2.6) and 7 men (mean Hoehn and Yahr score, 2.4). Intervention: Patients underwent 10 daily sessions of skill training therapy focused on increasing precision in muscle contraction during swallowing using visual feedback. Main Outcome Measures: Data from the timed water swallow test, Test of Mastication and Swallowing Solids, surface electromyography (sEMG) of submental muscles, and swallowing-related quality of life questionnaire were collected at 2 baseline sessions (conducted 2wk apart) at the end of treatment and after 2 nontreatment weeks to assess skill retention. Results: Immediately after posttreatment, the swallowing rate for liquids (P=.034), sEMG durational parameters of premotor time (P=.003), and preswallow time (P<.001) improved. A functional carryover effect was seen from dry to water swallows (P=.009). Additionally, swallowing-related quality of life improved

($P=.018$). Reassessment at 2 weeks after treatment termination revealed short-term retention of treatment effects. Conclusions: A skill-based training approach produced functional, biomechanical, and swallowing-related quality of life improvements in this cohort indicating compelling evidence for the effectiveness of this novel approach for dysphagia rehabilitation in PD.

Title: SPECIALIST PALLIATIVE CARE FOR PARKINSON'S DISEASE: EXPERIENCES OF A NOVEL INTEGRATIVE SERVICE.

Citation: Age & Ageing, 02 June 2014, vol./is. 43/suppl1(0-0), 00020729

Author(s): Richfield, E., Adams, D., Jones, E., Campbell, C., Johnson, M.

Abstract: Background: Parkinson's disease (PD) is a common neurodegenerative condition. Despite the recognised need for palliative care in PD, access to either generic or specialist palliative care (SPC) remains poor. Integrated SPC models of care have been described in other conditions. We report the experience of a novel service integrating SPC services for people with PD. Innovation: The Scarborough integrated PD SPC service is a joint venture between St Catherine's hospice and the movement disorder clinic at Scarborough General Hospital. Patients with potential palliative care needs are discussed at a monthly multi-disciplinary team meeting with representation from Elderly and palliative care teams. Evaluation: We retrospectively reviewed the case notes of all 47 patients (34 Male, Ave. Age 77 years) referred for SPC since the service started (30 months). At referral average disease duration was 85 months (range 5-321), mean L-dopa dose was 482mg and 34% of patients were in 24 hour care. Common triggers for referral included; complex symptoms (81%), future care planning (79%) and aspiration pneumonia /dysphagia (30%). Most carers had evidence of strain (88%) and most patients did not retain capacity for complex decision making (81%). 23 patients died and place of death was known for 22; with only 13% of deaths occurring in acute hospital beds (Care home 34%, Hospice 26%, Own home 13%, Hospital palliative care bed 8%). Conclusions: Access to SPC for PD is achievable in a district general setting. Experience so far indicates a dramatic reduction in death in hospital and increased deaths at home/hospice compared with previous UK data (Snell K et al. Age and Aging 2009; 38(5): 617-19). Cognitive impairment and 24 hour care were common, suggesting referral late in disease. Important triggers to consider referral for SPC include; carer support, future care planning, management of complex persistent symptoms and terminal care.

Full Text:

Available from *Oxford University Press NHS Pilot 2014 (NESLi2)* in [Age and Ageing](#); Note: ;

Collection notes: Available on NHS networked machines only

Available from *Ovid* in [Age and Ageing](#)

Title: ASSESSMENT OF OSTEOPOROSIS RISK IN PATIENTS WITH PARKINSON'S DISEASE AND A FRACTURED NECK OF FEMUR.

Citation: Age & Ageing, 02 June 2014, vol./is. 43/suppl1(0-0), 00020729

Author(s): Kerss, H., O'Neill, M.

Abstract: Background: Osteoporosis is 3 times more likely in patients with Parkinson's Disease (PD) compared to age matched controls due to a range of factors including immobility, decreased muscle strength and low body weight. Hyperhomocysteinaemia is an independent risk factor for osteoporosis and is common in PD secondary to levodopa use. Innovation Assessment of osteoporosis risk can be made via the FRAX & NOGG or Q fracture methods but it is not yet clear which is the most accurate method for assessing risk in patients with PD. Evaluation: All patients between 1/1/2011 to 31/12/2012 with a fractured neck of femur and Parkinson's Disease were identified (N = 24). 2 patients notes could not be located and one patient died within two weeks and thus were excluded from the study group (N = 21). Data was collected from the patient records. FRAX/NOGG and Q fracture risk assessment scores were calculated for each patient and

comparison of the management advice suggested by each score was made. There were 21 patients in total (7 male and 14 female). 13 had complex and 8 had maintenance stage Parkinson's Disease. Treated Not Treated Q Fracture FRAX/NOGG Q Fracture FRAX/NOGG Identified High Risk 13 (62%) 13 (62%) 6 (28.5%) 2 (9.5%) Identified Low Risk 002 (9.5%) 6 (28.5%) Conclusion: Q fracture risk assessment identified an additional 19% (N = 4) of patients with Parkinson's Disease who were at risk of osteoporotic fragility fracture in comparison to the use of the FRAX/NOGG assessment tool. 18 patients were not on any osteoporosis treatment pre-fracture suggesting there is a cohort of patients who might be at risk of osteoporosis who are not currently being adequately assessed and managed. Routine screening for osteoporosis should be undertaken in patients with Parkinson's Disease and this is best done with use of the Q fracture assessment tool.

Full Text:

Available from *Oxford University Press NHS Pilot 2014 (NESLi2)* in [Age and Ageing](#); Note: ;
Collection notes: Available on NHS networked machines only
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Title: A SIMPLE PROTOCOL FOR OBSERVING BACKWARD STEPPING AMONG PEOPLE WITH PARKINSON'S: AN ACTION FREQUENTLY ASSOCIATED WITH FALLS.

Citation: Age & Ageing, 02 June 2014, vol./is. 43/suppl1(0-0), 00020729

Author(s): Baulch, C., Stack, E., Roberts, H.

Abstract: Introduction: People with Parkinson's (PwP) frequently fall when walking, often tripping or failing to change direction successfully. Stepping backward, necessitating both ground clearance and travel without visual guidance, commonly causes falling among PwP. The single step backward has been little investigated, in comparison with backward walking, though the former is 'everyday' and the latter unusual. Unlike certain fall-related actions (such as turning), there is little evidence from which to develop rehabilitation strategies for safer backward stepping. We conducted a feasibility study to develop methods for analysing the backward step and to suggest avenues for rehabilitation. Methods: In a gait laboratory, 4 PwP (median age 75 years) and 4 healthy controls stepped back under two instructions: 'Step back when you are ready' and 'Take a big step back'. Wall-mounted scanners tracked button-sized markers on their shoes, measuring step height and length, and base width (heel separation) before and after stepping. We present data as a percentage of participant height. Results: Backward steps were a median 5% of participant's height vertically and 20% in length, narrowing the base 3% in PwP. Values were 7%, 27% and <1%, respectively, in controls. 'Big' backward steps were a median 8% high and 29% long, narrowing the base 3% in PwP, compared with 11%, 39% and 2%, respectively, in controls. The protocol was successful; under close supervision, no-one fell and representative movements were recorded. Conclusion: Among PwP, a history of instability moving backwards warrants investigation and intervention to reduce the risk of falling. Further research is required but clinicians might observe patients stepping backward to identify low, short steps (increasing tripping risk), base narrowing (decreasing stability) and an inability to 'up-scale' attempting 'big' steps. Following advice/ education in the short term, these features are potentially amenable to intervention through movement-retraining in the longer term.

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Collection notes: Available on NHS networked machines only
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Title: NON-MOTOR SYMPTOMS AND NON-WHITE ETHNICITY ARE ASSOCIATED WITH WORSE QUALITY OF LIFE AND INCREASED CAREGIVER STRAIN IN PARKINSON'S DISEASE.

Citation: Age & Ageing, 02 June 2014, vol./is. 43/suppl1(0-0), 00020729

Author(s): Belcher, R., Funaki, A., Vellodi, C., Mathew, S.

Abstract: Introduction: Parkinson's disease commonly causes non-motor symptoms (NMS) in addition to the well-recognized motor symptoms. Parkinson's disease has a significant impact on quality of life, and also causes strain on caregivers. Methods: This study sought to elucidate the impact of NMS on quality of life and caregiver strain in a sample of patients with Parkinson's disease attending a multidisciplinary, community hospital-based, outpatient clinic. The clinic is situated in an area of ethnic diversity. Demographic and disease information was collected, together with standardized assessments of NMS and disease severity. Quality of life was assessed using the Parkinson's Disease Questionnaire, and caregiver strain using the Caregiver Strain Index. Multivariate linear regression was used to analyse the effect of NMS and other explanatory variables. Results: 489 patients were assessed, with a mean age of 73 years. The majority of patients had mild or moderate disease (Hoehn and Yahr stage ≤ 3) and lived at home. Patients reported a mean of 8.6 NMS and only 1.2% of patients experienced no NMS. In multivariate analysis, motor symptoms were not associated with quality of life. However, more NMS and younger age were associated with worse quality of life and increased caregiver strain. Surprisingly, the strongest association with both quality of life and caregiver strain was being of non-white ethnicity. Conclusions: In this sample of community dwelling patients with Parkinson's disease, NMS had greater impact than motor symptoms on quality of life and caregiver strain. Being of non-white ethnicity has been associated with worse quality of life in other chronic diseases (AA Lopes, JL Gresham-Bragg, S Satayathum, Am J Kidney Disease, 2003, 41, 605-15). However, this was an unexpected finding, and further qualitative research may help to explain why patients from ethnic minorities with Parkinson's disease experience worse quality of life.

Full Text:

Available from *Oxford University Press NHS Pilot 2014 (NESLi2)* in [Age and Ageing](#); Note: ;

Collection notes: Available on NHS networked machines only

Available from *Ovid* in [Age and Ageing](#)

Title: GASTROPARESIS SYMPTOMS IN EARLY PARKINSON'S DISEASE.

Citation: Age & Ageing, 02 June 2014, vol./is. 43/suppl1(0-0), 00020729

Author(s): Marrinan, S., Bajaj, N., Barker, R., Ben-Shlomo, Y., Emmanuel, A., Foltynie, T., Grosset, D., Morris, H., Williams, N., Wood, N., Burn, D.

Abstract: Introduction: Gastroparesis is a chronic episodic disorder of delayed gastric emptying. Measurement of gastric emptying rates in PD suggests that 70-100% of patients may have abnormally delayed gastric emptying, which may contribute to the variable response to oral Levodopa seen in some patients. The relationship between gastric emptying rate and gastroparesis symptoms in PD is unclear. This study aims to define the prevalence and clinical features associated with gastroparesis symptoms in people with early PD. Methods: This is an interim report from a subset of patients recruited to the on-going Parkinson's Repository of Biosamples and Networked Datasets (PRoBaND) cohort study. Patients diagnosed with PD within the preceding three years completed a validated questionnaire regarding symptoms of gastroparesis (gastroparesis cardinal symptom index: GCSI). Results: Out of 672 patients, 64% were male, mean age 67.2 years (± 9.2 standard deviations [SD]), mean age at diagnosis 65.7 years (± 9.1 SD), median disease duration 1.4 years (interquartile range 1.67), mean UPDRS part 3 score 21.4 (± 11.7 SD). The median GCSI total score was 0.17 (interquartile range 0.64). 3.9% of patients had a high GCSI total score (≥ 1.90) consistent with a diagnosis of gastroparesis. Higher GCSI scores were significantly associated with female gender ($P < 0.001$), higher UPDRS part 3 score ($P < 0.05$) and constipation (< 1 bowel motion daily) ($P = 0.01$). Conclusions: Although measured gastric emptying delay is common in PD, only 3.9% of patients with early PD report significant

gastroparesis symptoms. This suggests that delayed gastric emptying may be largely asymptomatic, as has also been suggested in diabetic populations. The association of more severe gastroparesis symptoms with worse motor features and constipation is novel and will be further explored in the full PRoBaND cohort.

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Available from *Oxford University Press NHS Pilot 2014 (NESLi2)* in [Age and Ageing](#); Note: ;
Collection notes: Available on NHS networked machines only
Available from *Ovid* in [Age and Ageing](#)

Title: Exercise Guidelines for Patients With Parkinson's Disease: An Overview for the Home Health Care Professional.

Citation: Home Health Care Management & Practice, 01 August 2014, vol./is. 26/3(167-174), 10848223

Author(s): McGraw, Samantha M., Hoover, Donald L., Shirey, Matthew P.

Title: Activities of daily living, depression, and quality of life in Parkinson's disease

Citation: PLoS ONE, July 2014, vol./is. 9/7, 1932-6203 (15 Jul 2014)

Author(s): Lawrence B.J., Gasson N., Kane R., Bucks R.S., Loftus A.M.

Abstract: This study examined whether activities of daily living (ADL) mediate the relationship between depression and health-related quality of life (HR-QOL) in people with Parkinson's disease (PD). A cross-sectional, correlational research design examined data from 174 participants who completed the Geriatric Depression Scale (GDS-15), Parkinson's Disease Questionnaire-39 (PDQ-39), and Unified Parkinson's Disease Rating Scale-section 2 (UPDRS-section 2 [ADL]). Multiple Regression Analysis (MRA) was used to examine the mediator model. Depression and ADL significantly ($p < .001$) predicted HR-QOL, and depression significantly ($p < .001$) predicted ADL. Whilst ADL did not impact on the relationship between depression and HRQOL, there was a significant ($p < .001$) indirect effect of depression on HR-QOL via ADL, suggesting both direct and indirect (via ADL) effects of depression on HR-QOL. The magnitude of this effect was moderate ($R^2 = .13$). People with PD who report depression also experience greater difficulty completing ADL, which impacts upon their HR-QOL. It is recommended that clinicians adopt a multidisciplinary approach to care by combining pharmacological treatments with psycho/occupational therapy, thereby alleviating the heterogeneous impact of motor and non-motor symptoms on HR-QOL in people with PD. 2014 Lawrence et al.

Full Text:

Available from *National Library of Medicine* in [PLoS ONE](#)

Available from *ProQuest* in [PLoS One](#)

Sources Used

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