

# Parkinson's Disease

  

# Current Awareness

  

# Bulletin

**September 2016**

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**Title: Comparison of Self-report and Performance-Based Balance Measures for Predicting Recurrent Falls in People With Parkinson Disease: Cohort Study.**

**Citation:** Physical Therapy, 2016, vol./is. 96/7(1074-1084), 00319023

**Author(s):** Almeida, Lorena R. S., Valenca, Guilherme T., Negreiros, Nádja N.

**Abstract:** Balance confidence and fear of falling are factors associated with recurrent falls in people with Parkinson disease (PD). However, the accuracy for predicting falls on the basis of self-report measures has not been widely investigated. The study objectives were: (1) to compare the accuracy of the Activities-specific Balance Confidence Scale (ABC) and the Falls Efficacy Scale-International (FES-I) with that of the Berg Balance Scale (BBS), Dynamic Gait Index (DGI), Functional Reach Test (FRT), and Timed "Up & Go" Test (TUG) for predicting recurrent falls in people with PD and (2) to explore the ability of combinations of up to 3 tests to predict recurrent falls. This was a prospective cohort study involving 225 people with PD. Participants were assessed with the ABC, FES-I, BBS, FRT, TUG, and DGI. Participants who reported 2 or more falls in the 12-month follow-up period were classified as recurrent fallers. Areas under the receiver operating characteristic curves were determined, and the Akaike information criterion was used to select the best predictive model. Eighty-four participants (37.3%) were classified as recurrent fallers. Areas under the receiver operating characteristic curves for the ABC, FES-I, TUG, FRT, DGI, and BBS were 0.73, 0.74, 0.72, 0.74, 0.76, and 0.79, respectively. Two-test models provided additional discriminating ability compared with individual measures and had Akaike information criterion values similar to those of 3-test models, particularly the combination of the BBS with the FES-I. The lack of an external validation sample was a limitation of this study. The ABC and FES-I demonstrated moderate accuracy in predicting recurrent falls and a predictive ability similar to that of performance-based balance measures, especially the FRT and the TUG. Two-test models showed performance similar to that of 3-test models, suggesting that a combination of 2 measures may improve the ability to predict recurrent falls in people with PD. Specifically, the combination of the BBS with the FES-I may be considered. © 2016 American Physical Therapy Association.

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**Title: Effects of Physical-Exercise-Based Rehabilitation Programs on the Quality of Life of Patients With Parkinson's Disease: A Systematic Review of Randomized Controlled Trials.**

**Citation:** Journal of aging and physical activity, Jul 2016, vol. 24, no. 3, p. 484-496, 1543-267X (July 2016)

**Author(s):** Cascaes da Silva, Franciele, Iop Rda, Rodrigo, Domingos Dos Santos, Patrícia, Aguiar Bezerra de Melo, Lídia Mara, Barbosa Gutierrez Filho, Paulo José, da Silva, Rudney

**Abstract:** This study aimed to determine the effects of physical-exercise-based rehabilitation programs on quality of life of patients with Parkinson's disease through a systematic review of randomized clinical trials. For this purpose the following electronic databases were selected: Medline by PubMed, Cochrane, Web of Science, and PEDro. The search strategy included the proposed descriptors in the Medical Subject Headings (MeSH), associated with a sensitive list of terms to search for randomized controlled trials (RCTs), without year and language restrictions. Fourteen studies were potentially relevant, and these studies were included. Physical-exercise-based rehabilitation programs realized 2-4 times a week, 60 min each session, for 6-12 weeks, and follow-up of 3 months promotes significant positive effects on quality of life in Parkinson's disease patients at mild to moderate stages and disease duration around 6 years.

**Title: Treatment of Fatigue in Parkinson Disease.**

**Citation:** JAMA: Journal of the American Medical Association, 2016, vol./is. 315/21(2340-2341), 00987484

**Author(s):** Elbers, Roy G., Berendse, Henk W., Kwakkel, Gert

**Abstract:** Clinical Question: Which pharmacological and nonpharmacological interventions are associated with improvement in general, physical, or mental fatigue and minimal adverse effects in patients with Parkinson disease (PD)? Bottom Line: Rasagiline, modafinil, and doxepin are associated with improvement in fatigue and are not associated with increased risk of adverse effects in patients with PD. However, the quality of evidence is limited and does not provide a clear basis for treatment decisions.

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**Title: Changes in postural control in patients with Parkinson's disease: a posturographic study.**

**Citation:** Physiotherapy, Sep 2016, vol. 102, no. 3, p. 272-279, 1873-1465 (September 2016)

**Author(s):** Doná, F, Aquino, C C, Gazzola, J M, Borges, V, Silva, S M C A, Ganança, F F, Caovilla, H H, Ferraz, H B

**Abstract:** Postural instability is one of the most disabling features in Parkinson's disease (PD), and often leads to falls that reduce mobility and functional capacity. The objectives of this study were to analyse the limit of stability (LOS) and influence of the manipulation of visual, somatosensorial and visual-vestibular information on postural control in patients with PD and healthy subjects. Cross-sectional. Movement Disorders Unit, university setting. Eighty-two subjects aged between 37 and 83 years: 41 with Parkinson's disease in the 'on' state and 41 healthy subjects with no neurological disorders. Both groups were matched in terms of sex and age. Unified Parkinson's Disease Rating Scale (UPDRS)-motor score, modified Hoehn and Yahr staging, Dynamic Gait Index (DGI) and posturography with integrated virtual reality. The parameters analysed by posturography were LOS area, area of body centre of pressure excursion and balance functional reserve in the standing position in 10 conditions (open and closed eyes, unstable surface with eyes closed, saccadic and optokinetic stimuli, and visual-vestibular interaction). The mean UPDRS motor score and DGI score were 27 [standard deviation (SD) 14] and 21 (SD 3), respectively. Thirteen participants scored between 0 and 19 points, indicating major risk of falls. Posturographic assessment showed that patients with PD had significantly lower LOS area and balance functional reserve values, and greater body sway area in all posturographic conditions compared with healthy subjects. Patients with PD have reduced LOS area and greater postural sway compared with healthy subjects. The deterioration in postural control was significantly associated with major risk of falls. Copyright © 2015 Chartered Society of Physiotherapy. Published by Elsevier Ltd. All rights reserved.

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**Title: Test-Retest Reliability of Dual-Task Outcome Measures in People With Parkinson Disease.**

**Citation:** Physical therapy, Aug 2016, vol. 96, no. 8, p. 1276-1286, 1538-6724 (August 2016)

**Author(s):** Strouwen, Carolien, Molenaar, Esther A L M, Keus, Samyra H J, Münks, Liesbeth, Bloem, Bastiaan R, Nieuwboer, Alice

**Abstract:** Dual-task (DT) training is gaining ground as a physical therapy intervention in people with Parkinson disease (PD). Future studies evaluating the effect of such interventions need reliable outcome measures. To date, the test-retest reliability of DT measures in patients with PD remains largely unknown. The purpose of this study was to assess the reliability of DT outcome measures in patients with PD. A repeated-measures design was used. Patients with PD ("on"

medication, Mini-Mental State Examination score  $\geq 24$ ) performed 2 cognitive tasks (ie, backward digit span task and auditory Stroop task) and 1 functional task (ie, mobile phone task) in combination with walking. Tasks were assessed at 2 time points (same hour) with an interval of 6 weeks. Test-retest reliability was assessed for gait while performing each secondary task (DT gait) for both cognitive tasks while walking (DT cognitive) and for the functional task while walking (DT functional). Sixty-two patients with PD (age=39-89 years, Hoehn and Yahr stages II-III) were included in the study. Intraclass correlation coefficients (ICCs) showed excellent reliability for DT gait measures, ranging between .86 and .95 when combined with the digit span task, between .86 and .95 when combined with the auditory Stroop task, and between .72 and .90 when combined with the mobile phone task. The standard error of measurements for DT gait speed varied between 0.06 and 0.08 m/s, leading to minimal detectable changes between 0.16 and 0.22 m/s. With regard to DT cognitive measures, reaction times showed good-to-excellent reliability (digit span task: ICC=.75; auditory Stroop task: ICC=.82). The results cannot be generalized to patients with advanced disease or to other DT measures. In people with PD, DT measures proved to be reliable for use in clinical studies and look promising for use in clinical practice to assess improvements after DT training. Large effects, however, are needed to obtain meaningful effect sizes. © 2016 American Physical Therapy Association.

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**Title: Treadmill training combined with water and land-based exercise programs: Effects on Parkinson's disease patients.**

**Citation:** *NeuroRehabilitation*, Jun 2016, vol. 39, no. 2, p. 295-299, 1878-6448 (June 30, 2016)

**Author(s):** Ayan, Carlos, Varela, Silvia, Vila, M Helena, Seijo-Martinez, Manuel, Cancela, José M

**Abstract:** There is a need for studies about the effects of treadmill training (TT) on Parkinson's disease (PD) patients when combined with other exercise training modalities. To identify the effects of a multicomponent rehabilitation program on the illness impact, quality of life and fitness level in Parkinson's disease. Participants were assigned to two exercise groups: water and land-based exercise (WL) or water and land-based exercise plus treadmill training (TWL). The water and land-based exercise group performed one water-based exercise and one land-based exercise session per week for 15 weeks. Participants in the water and land-based exercise plus treadmill training added two sessions of treadmill training to this schedule. The Senior Fitness Test (SFT) was used to assess the sample's fitness level. Participants in the water and land-based exercise Group experienced significant benefits in the disease impact (UPDRS  $t=3.083$ ;  $p=0.029$ ) and quality of life (PDQ-39  $t=2.942$ ;  $p=0.036$ ). The addition of treadmill training did not have any significant effect on these variables. Both programs showed similar effects on the fitness components evaluated. Adding treadmill training to a combination of water and land-based exercise programs may have limited effects on quality of life and the impact on the disease.

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**Title: Psychosis in Parkinson's Disease: Epidemiology, Pathophysiology, and Management.**

**Citation:** *Drugs*, 2016, vol./is. 76/11(1093-1118), 00126667

**Author(s):** Chang, Anna, Fox, Susan

### **Title: Resistance Training with Instability for Patients with Parkinson's Disease.**

**Citation:** *Medicine & Science in Sports & Exercise*, 2016, vol./is. 48/9(1678-1687), 01959131

**Author(s):** SILVA-BATISTA, CARLA, CORCOS, DANIEL M., ROSCHEL, HAMILTON, KANEGUSUKU, HELCIO, BUCKEN GOBBI, LILIAN TERESA, PIMENTEL PIEMONTE, MARIA ELISA, TAVARES MATTOS, EUGENIA CASELLA, TULIO DE MELLO, MARCO, FORJAZ, CLAUDIA L. M., TRICOLI, VALMOR, UGRINOWITSCH, CARLOS

**Abstract:** This randomized controlled trial compared the effects of resistance training (RT) and RT with instability (RTI) on the timed up and go test (TUG), on-medication Unified Parkinson's Disease Rating Scale part III motor subscale score (UPDRS-III), Montreal Cognitive Assessment (MoCA) score, Parkinson's Disease Questionnaire (PDQ-39) score, and muscle strength in the leg press exercise (one-repetition maximum) of patients with Parkinson's disease (PD). Thirty-nine patients with moderate to severe PD were randomly assigned to a nonexercising control group (C), RT group, and RTI group. The RT and RTI groups performed progressive RT twice a week for 12 wk. However, only the RTI group used high motor complexity exercises (i.e., progressive RT with unstable devices), for example, half squat exercise on the BOSU® device. The primary outcome was mobility (TUG). The secondary outcomes were on-medication motor signs (UPDRS-III), cognitive impairment (MoCA), quality of life (PDQ-39), and muscle strength (one-repetition maximum). There were no differences between RTI and RT groups for any of the outcomes at posttraining ( $P > 0.05$ ). However, there were differences between RTI and C groups in the TUG, MoCA, and muscle strength values at posttraining ( $P < 0.05$ ). Only the RTI group improved the TUG (-1.9 s), UPDRS-III score (-4.5 score), MoCA score (6.0 score), and PDQ-39 score (-5.2 score) from pre- to posttraining ( $P < 0.001$ ). Muscle strength improved for both training groups ( $P < 0.001$ ). No adverse events were reported during the trial. Both training protocols improved muscle strength, but only RTI improved the mobility, motor signs, cognitive impairment, and quality of life, likely because of the usage of high motor complexity exercises. Thus, RTI may be recommended as an innovative adjunct therapeutic intervention for patients with PD.

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### **Title: The Implications of Parkinson's Disease for Women's Health.**

**Citation:** *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 2016, vol./is. 45/5(723-736), 08842175

**Author(s):** Pretzer-Aboff, Ingrid, Bunting-Perry, Lisette, Spindler, Meredith

**Abstract:** Parkinson's disease affects more than 10 million people worldwide, and this number is expected to grow substantially during the next 25 years. Women are two thirds as likely as men to have Parkinson's disease. The symptoms associated with Parkinson's disease are complex and span a spectrum of motor and nonmotor manifestations. We provide an overview of Parkinson's disease, including sex-specific differences in prevalence, clinical presentation, diagnosis, and treatment. Copyright © 2016 AWHONN, the Association of Women's Health, Obstetric and Neonatal Nurses. Published by Elsevier Inc. All rights reserved.

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### **Title: The Experience of Women Who Care for Spouses With Parkinson's Disease and Lower Urinary Tract Symptoms.**

**Citation:** *JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing*, 2016, vol./is. 45/5(737-748), 08842175

**Author(s):** Moriarty, Helene, Bunting-Perry, Lisette, Robinson, Joanne P., Bradway, Christine W.

**Abstract:** To describe the symptoms, bother, impact, and attribution of lower urinary tract symptoms (LUTS) and management strategies from the perspective of the spouse caregiver. A

qualitative descriptive design with semistructured interviews was guided by the Theory of Unpleasant Symptoms and family systems theory. Women were recruited from a Parkinson's Center at a Veterans Affairs hospital in the northeastern part of the United States. Their veteran husbands received care for Parkinson's disease at the center. Participants were 15 female spouse caregivers of men with Parkinson's disease and associated LUTS. Purposive sampling was used to select caregiver participants for audiotaped interviews. Semistructured interviews were conducted with the participants. A directed content analysis was used to code transcribed interviews and field notes. The cognitive, affective, and behavioral dimensions of caring for a spouse with LUTS were identified. Participants were knowledgeable about the direct effect of Parkinson's disease on the bladder. Their affective responses included experiencing bother, emotional distress from the impact of LUTS on their lives, and empathy for their husbands. Participants tried many behavioral strategies to manage LUTS but received limited professional assistance for daily LUTS management. Multidisciplinary, patient- and family-centered approaches that provide education, treatment, and support are needed to promote better management of LUTS, maintain patient dignity, and reduce burden for the patient and family. Copyright © 2016 AWHONN, the Association of Women's Health, Obstetric and Neonatal Nurses. Published by Elsevier Inc. All rights reserved.

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**Title: Sex Differences in the Clinical Progression of Parkinson's Disease.**

**Citation:** JOGNN: Journal of Obstetric, Gynecologic & Neonatal Nursing, 2016, vol./is. 45/5(749-756), 08842175

**Author(s):** Dahodwala, Nabila, Pei, Qinglin, Schmidt, Peter

**Abstract:** To describe characteristics of Parkinson's disease by sex and determine if differences in disease progression exist. Longitudinal, observational study. Twenty-one National Parkinson Foundation Centers of Excellence. People (N = 4,679; 63% men and 37% women) with idiopathic Parkinson's disease. Demographic and clinical data at enrollment and after 1 year were collected. We defined progression as a 1-year change in the following functional health outcome measures: (a) health-related quality of life (Parkinson's Disease Questionnaire-39), (b) Timed Up and Go test, (c) cognitive function, and (d) number of medications. We compared baseline characteristics between men and women. Then, linear regression models were built to assess the independent contribution of sex to progression. At baseline, women were significantly more likely to be older and have greater disease severity and more comorbidities than men despite similar duration of disease. This finding corresponded to worse function as assessed by the Parkinson's Disease Questionnaire-39 and Timed Up and Go test but not to number of medications and cognitive function. After 1 year, declines across all functional measures except delayed recall occurred. No significant changes in Parkinson's Disease Questionnaire-39, Timed Up and Go, number of medications, or verbal fluency between men and women occurred. Women had a more significant improvement in delayed recall than men. Numerous small baseline differences occurred between men and women with PD, although differences in markers of progression were few. Findings suggest that clinical manifestations and prognosis appear similar by sex under the same treatment conditions. Copyright © 2016 AWHONN, the Association of Women's Health, Obstetric and Neonatal Nurses. Published by Elsevier Inc. All rights reserved.

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**Title: Clear Speech Variants: An Acoustic Study in Parkinson's Disease.**

**Citation:** Journal of Speech, Language & Hearing Research, 2016, vol./is. 59/4(361-376), 10924388

**Author(s):** Lam, Jennifer, Tjaden, Kris

**Abstract:** The authors investigated how different variants of clear speech affect segmental and suprasegmental acoustic measures of speech in speakers with Parkinson's disease and a healthy control group. A total of 14 participants with Parkinson's disease and 14 control participants served

as speakers. Each speaker produced 18 different sentences selected from the Sentence Intelligibility Test (Yorkston & Beukelman, 1996). All speakers produced stimuli in 4 speaking conditions (habitual, clear, overenunciate, and hearing impaired). Segmental acoustic measures included vowel space area and first moment (M1) coefficient difference measures for consonant pairs. Second formant slope of diphthongs and measures of vowel and fricative durations were also obtained. Suprasegmental measures included fundamental frequency, sound pressure level, and articulation rate. For the majority of adjustments, all variants of clear speech instruction differed from the habitual condition. The overenunciate condition elicited the greatest magnitude of change for segmental measures (vowel space area, vowel durations) and the slowest articulation rates. The hearing impaired condition elicited the greatest fricative durations and suprasegmental adjustments (fundamental frequency, sound pressure level). Findings have implications for a model of speech production for healthy speakers as well as for speakers with dysarthria. Findings also suggest that particular clear speech instructions may target distinct speech subsystems.

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**Title: Bone mass and vitamin D levels in Parkinson's disease: is there any difference between genders?**

**Citation:** Journal of Physical Therapy Science, 2016, vol./is. 28/8(2204-2209), 09155287

**Author(s):** OZTURK, ERHAN ARIF, GUNDOGDU, IBRAHIM, TONUUK, BURAK, KOCER, BILGE GONENLI, TOMBAK, YASEMIN, COMOGLU, SELCUK, CAKCI, AYTUL

**Abstract:** [Purpose] The aim of this study was to determine the bone mineral density, vitamin D level, and frequencies of osteopenia and osteoporosis in patients with Parkinson's disease and to compare male and female patients with the controls separately. [Subjects and Methods] One hundred fifteen Parkinson's disease patients (47 males, 68 females; age range: 55-85 years) and 117 age- and gender-matched controls (47 males, 70 females) were enrolled in the study. Bone mineral density measured by dual-energy X-ray absorptiometry and serum D vitamin levels of each participant were recorded. [Results] The mean lumbar spine, femur neck, and total femur bone mineral density levels, T-scores, and vitamin D levels were found to be significantly lower in Parkinson's disease patients in both genders. Furthermore, osteoporosis rates were found to be significantly higher only in female Parkinson's disease patients compared with female controls. [Conclusion] Data from the present study revealed that while osteoporosis was significantly higher only in female Parkinson's disease patients, all Parkinson's disease patients had lower bone mineral density scores and vitamin D levels compared with the controls regardless of gender, suggesting that clinicians should pay attention to the osteoporosis risk in Parkinson's disease and that adequate preventive measures should be taken in order to limit the future risk due to osteoporotic fractures.

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**Sources Used:** The following databases are searched on a regular basis in the development of this bulletin: Amed, British Nursing Index, Cinahl, Medline

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