

# Parkinson's Disease Current Awareness Bulletin May 2018

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### Title: Constraints, Facilitators, and Stages of Behavioral Change in Physical Activity for Individuals with Parkinson's Disease.

**Citation:** American Journal of Health Education; May 2018; vol. 49 (no. 3); p. 179-189 **Author(s):** MacCosham, Bradley; Webb, Evan; Oey, Jessica; Gravelle, Francois

**Background:** Parkinson's disease (PD) is a movement disorder with no cure. Symptoms related to PD can be managed through physical activity (PA). However, individuals with PD tend to be sedentary.

**Purpose:** The purpose of this study was to identify the perceived constraints and facilitators to PA in each stage of behavioral change for individuals with PD.

**Methods:** A qualitative methodology was utilized to uncover factors influencing behavior from the participants' perspectives. Twelve participants were recruited and took part in a semistructured interview. Thematic analysis was performed on the data.

**Results:** Constraints in the pre-intention stage related to psychological states. In the intention stage, interpersonal constraints resulted from participants' lack of support from others, and environmental constraints addressed accessibility. The action and maintenance stages saw a decrease in constraints. Few facilitators were mentioned in the pre-intention stage. The intention stage saw an increase in the variety of facilitators. Environmental facilitators in the intention stage highlighted the importance of accessibility to knowledge on programs. Facilitators were also important for maintenance of their PA behavior.

**Discussion:** Findings suggest that multiple factors influence behavior at different stages of behavioral change in PA.

**Translation to Health Education Practice:** These results can be utilized to develop/implement interventions to increase PA behavior in this population.

Title: Demographic and Clinical Predictors of Trait Impulsivity in Parkinson's Disease Patients.

Citation: Parkinson's Disease (20420080); Apr 2018 ; p. 1-7

**Author(s):** Riley, Maddeson; Bakeberg, Megan; Byrnes, Michelle; Jefferson, Alexa; Ghosh, Soumya; Stell, Rick; Mastaglia, Frank L.; Hince, Dana; Anderton, Ryan S.

**Background:** Impulsive behaviour has become increasingly recognised as a neuropsychiatric complication of Parkinson's disease (PD). Thought to be a product of compromised cognitive control, the spectrum of impulsive behaviours in PD ranges from cognitive disinhibition to impulse control disorders (ICDs).

**Objective:** At present, there are no indicators for trait impulsivity in PD. The objective of the current study was to identify demographic and clinical predictors of susceptibility to trait impulsivity in a cohort of PD patients.

**Methods:** The current study assessed impulsivity using the Barratt Impulsiveness Scale 11 (BIS-11) in a cohort of 87 PD patients. General linear models (GLMs) were used to identify clinical and demographic variables predictive of heightened BIS-11 second-order attentional and nonplanning subscale scores.

**Results:** Male gender, no history of smoking, postsecondary education, and heightened disease severity were predictive of increased BIS-11 attentional scores (p<0.05). Similarly, male gender, after secondary education, and disease severity were predictive of increased BIS-11 nonplanning

scores (p<0.05). Contrary to previous reports, dopaminergic medication use was not a significant determinant of either BIS-11 subscale scores.

**Conclusions:** Several demographic and clinical variables including male gender, no history of past smoking, after secondary education, and elevated disease severity are associated with impulsivity in PD.

#### Title: Coping with Cognitive Impairment in People with Parkinson's Disease and Their Carers: A Qualitative Study.

Citation: Parkinson's Disease (20420080); Apr 2018 ; p. 1-10

Author(s): Lawson, Rachael A.; Collerton, Daniel; Taylor, John-Paul; Burn, David J.; Brittain, Katie R.

**Abstract:** Cognitive impairment is common in Parkinson's disease (PD). However, the psychosocial impact of living and coping with PD and cognitive impairment in people with PD and their carers have not been explored. This paper draws on a qualitative study that explores the subjective impact of cognitive impairment on people with PD and their carers. Thirty-six one-to-one interviews were completed; people with PD were from three groups: normal cognition, mild cognitive impairment, and dementia. Data collection and analysis were iterative, and verbatim transcripts were analysed using thematic analysis. Themes were interpreted in consultation with coping and adaptation theory. The analysis revealed four main themes: threats to identity and role, predeath grief and feelings of loss in carers, success and challenges to coping in people with PD, and problem-focused coping and finding meaning in caring. Our data highlight how cognitive impairment can threaten an individual's self-perception; the ostensible effects of cognitive impairment depended on the impact individual's perceived cognitive impairment had on their daily lives. For carers, cognitive impairment had a greater emotional impact than the physical symptoms of PD. The discussion that developed around protective factors provides possible opportunities for future interventions, such as psychological therapies to improve successful adjustment.

### Title: Bilateral Deep Brain Stimulation Improves Non-Motor Symptoms of Parkinson's Disease Two Years After Surgery.

Citation: Neurology Today; Apr 2018; vol. 18 (no. 7); p. 13-15 Author(s): BENDER, EVE

### Title: Vitamin B12 deficiency can be a cause of acute reversible parkinsonism and cognitive impairment in older adults.

**Citation:** Geriatrics & Gerontology International; Apr 2018; vol. 18 (no. 4); p. 650-651 **Author(s):** Soysal, Pinar; Turan Isik, Ahmet

#### Title: Levodopa-carbidopa intestinal gel: 'dismantling the road blocks of a journey'.

**Citation:** Internal Medicine Journal; Apr 2018; vol. 48 (no. 4); p. 472-474 **Author(s):** Vijiaratnam, Nirosen; Sue, Carolyn M.

**Abstract:** Levodopa-carbidopa intestinal gel offers superior treatment to standard oral therapy in selective patients with advanced Parkinson disease. The costs involved in instituting and maintaining this treatment are high but largely mitigated with the quality of life years the treatment offers. Key to this is ensuring a high retention rate once the treatment is instituted. We outline factors and considerations from our experience and viewpoints at each stage of the process to address in this 'journey' patients undertake that can help maximise retention rates and benefits.

### Title: The Caregivers' Attachment and Relationship Education Class: A New and Promising Group Therapy for Caregivers of Individuals with Parkinson's Disease.

**Citation:** Journal of Couple & Relationship Therapy; Apr 2018; vol. 17 (no. 2); p. 97-113 **Author(s):** Poyner-Del Vento, Patrick; Goy, Elizabeth; Baddeley, Jenna; Libet, Julian

**Abstract:** The authors examined whether a newly developed group therapy, based on principles of attachment theory and emotionally focused couples therapy, can potentially address the unique mental health and relationship difficulties in caregivers of individuals with Parkinson's disease. A comprehensive outreach effort, involving a review of 251 military veterans' medical records, yielded enrollment of seven spousal caregivers in the group therapy. At 1-month follow-up, caregivers who initially reported mild or greater levels of caregiver burden demonstrated statistically reliable declines in psychological distress, relationship distress, or both. Posttreatment surveys indicated positive perceptions in overall helpfulness of treatment goals, as well as positive changes in insight (e.g., greater understanding of the patient's attachment needs) and behaviors (e.g., greater social contact and self-care of the caregiver). Results are considered in the context of inadequate access to treatment for caregivers of spouses with Parkinson's disease or other major medical issues.

### Title: Turo (qi dance) Program for Parkinson's Disease Patients: Randomized, Assessor Blind, Waiting-List Control, Partial Crossover Study.

Citation: Explore: The Journal of Science & Healing; Mar 2018; vol. 14 (no. 2)

**Author(s):** Lee, Hwa-Jin; Kim, Song-Yi; Chae, Younbyoung; Kim, Mi-Young; Yin, Changshik; Jung, Woo-Sang; Cho, Ki-Ho; Kim, Seung-Nam; Park, Hi-Joon; Lee, Hyejung

**Context:** Qigong, Tai-chi and dancing have all been proven effective for Parkinson's disease (PD); however, no study has yet assessed the efficacy of Turo, a hybrid qigong dancing program developed to relieve symptoms in PD patients.

**Objective:** To determine whether Turo may provide benefit in addressing the symptoms of PD patients.

**Design:** Randomized, assessor blind, waiting-list control, partial crossover study.

Setting: Kyung Hee University Korean Medicine Hospital, Seoul, Republic of Korea.

**Participants:** A total of 32 PD patients (mean age  $65.7 \pm 6.8$ ).

**Intervention:** Participants were assigned to the Turo group or the waiting-list control group. The Turo group participated in an 8-week Turo training program (60-minute sessions twice a week). The waiting-list control group received no additional treatment during the same period; then underwent the same 8-week Turo training.

**Outcome Measures:** The primary outcome was a score on the Unified Parkinson's Disease Rating Scale (UPDRS), and the secondary outcomes included the perceived health status assessed using the Parkinson's disease Quality of Life questionnaire (PDQL), balance function as

assessed by the Berg Balance Scale (BBS) and the results of the Beck Depression Inventory (BDI).

**Results:** The Turo group showed statistically significant improvements in the UPDRS (P < 0.01) and PDQL (P < 0.05) as compared to the control group. The changes in BBS scores displayed a tendency toward improvement, but was not statistically significant (P = 0.051).

**Conclusion:** These findings suggest that Turo PD training might improve the symptoms of PD patients.

#### Title: Predictive model for health-related quality of life in patients with Parkinson's disease.

**Citation:** Geriatric Nursing; Mar 2018; vol. 39 (no. 2); p. 204-211 **Author(s):** Lee, Sook Ja; Kim, Sung Reul; Chung, Sun Ju; Kang, Hyun Cheol; Kim, Mi Sun; Cho, Su-Jin; Kwon, Hye Kyung; Kim, Jungwon; Jung, Sun Young

**Abstract:** This study was conducted to develop and test a prediction model that explains healthrelated quality of life (HRQoL) of patients with Parkinson's disease (PD). Participants were 248 patients with PD enrolled in the neurology clinic of a university hospital in Seoul, Korea. The data were collected through structured questionnaires from March 1 to July 5, 2013. Motor fluctuations, depression, sleep disturbances, fatigue, and activities of daily living had significant direct effects on the quality of life of PD patients. Disease severity, social support, pain, sleep disturbances, fatigue, and activities of daily living had significant indirect effects on patients' quality of life. These predictive variables explained 77.4% of the total variance. The assessment of HRQoL in PD should be considered along with the variables affecting it, including social support. In addition, strategies to enhance social support may be useful for improving the quality of life for patients with PD.

### Title: Evidence for Differential Effects of 2 Forms of Exercise on Prefrontal Plasticity During Walking in Parkinson's Disease.

Citation: Neurorehabilitation & Neural Repair; Mar 2018; vol. 32 (no. 3); p. 200-208

Author(s): Maidan, Inbal; Nieuwhof, Freek; Bernad-Elazari, Hagar; Bloem, Bastiaan R.; Giladi, Nir; Hausdorff, Jeffrey M.; Claassen, Jurgen A. H. R.; Mirelman, Anat

**Background:** In a randomized control trial conducted in patients with Parkinson's disease, a treadmill training program combined with virtual reality that targeted motor and cognitive aspects of safe ambulation led to fewer falls, compared with treadmill training alone.

**Objective:** To investigate if the 2 types of training differentially affected prefrontal activation and if this might explain differences in fall rates after the intervention.

**Methods:** Sixty-four patients with Parkinson's disease were randomized into the treadmill training arm (n = 34, mean age 73.1  $\pm$  1.1 years, 64% men, disease duration 9.7  $\pm$  1.0 years) or treadmill training with virtual reality arm (n = 30, mean age 70.1  $\pm$  1.3 years, 71% men, disease duration 8.9  $\pm$  1.1 years). Prefrontal activation during usual, dual-task, and obstacle negotiation walking was assessed before and after 6 weeks of training, using a functional near-infrared spectroscopy system.

**Results:** Treadmill training with and without virtual reality reduced prefrontal activation during walking (P < .001), with specific interactions related to training arm (P = .01), lateralization (P = .05), and walking condition (P = .001). For example, among the subjects who trained with treadmill training alone, prefrontal activation during dual-task walking and obstacle negotiation increased after training, while in the combined training arm, activation decreased.

**Conclusions:** Prefrontal activation during usual and during more challenging walking conditions can be altered in response to 2 different types of training. The addition of a cognitive training component to a treadmill exercise program apparently modifies the effects of the training on the magnitude and lateralization of prefrontal activation and on falls, extending the understanding of the plasticity of the brain in PD.

### Title: It takes two: the influence of dance partners on the perceived enjoyment and benefits during participation in partnered ballroom dance classes for people with Parkinson's.

**Citation:** Disability & Rehabilitation; Aug 2018; vol. 40 (no. 16); p. 1933-1942 **Author(s):** Kunkel, Dorit; Robison, Judy; Fitton, Carolyn; Hulbert, Sophia; Roberts, Lisa; Wiles, Rose; Pickering, Ruth; Roberts, Helen; Ashburn, Ann

**Purpose:** To explore the views of people with Parkinson's and their dance partners on the influence and issues surrounding dancing with an able-bodied dance partner during partnered ball room dance classes.

**Methods:** In depth, semi-structured interviews explored purposively selected participants' experiences and views about dance classes. Fourteen people with Parkinson's and their dance partners (six spouses, two friends/relatives, five volunteers) were interviewed within a month of completing the 10-week dance class program. Data were analyzed thematically.

**Results:** Generally, those partnered with a spouse or an experienced dancer, or when dance couples were able to develop good rapport, gained greater enjoyment and sense of achievement from dance classes in comparison to couples who did not enjoy dancing together or had clashing approaches to dance. Managing and negotiating who would "lead" in a dance was challenging for dance couples particularly among male people with Parkinson's.

**Conclusions:** People with Parkinson's experience of the dance classes were influenced by the relationship and compatibility with their dance partner. Dance partnerships may impact on recruitment, enjoyment, outcome and continued participation in dance classes. Potential effects of partnerships should be analyzed and reported in studies evaluating the outcomes of dance classes. Implications for rehabilitation: We recommend that health professionals consider involving spouses in Parkinson's dance classes as this may improve recruitment, adherence, enjoyment and overall outcome of the dance classes. If volunteers are needed, aim to recruit those who already have good dancing ability, convey a love of dancing and have the sensitivity and social skills to interact positively with the person with Parkinson's. Consider dance partnership issues when advertising and promoting dance classes. Address partnership issues through open communication and by changing partners if the dance partnership is not working well.

### Title: Neurotech-Parkinson's Disease: Smartphones to Quantify Parkinson's Disease Severity in Real-World Settings.

**Citation:** Neurology Today; May 2018; vol. 18 (no. 9); p. 4-5 **Author(s):** Kreimer, Susan

#### Title: Anaesthesia for Caesarean section in a patient with Parkinson's disease.

**Citation:** International Journal of Obstetric Anesthesia; May 2018; vol. 34 ; p. 99-102 **Author(s):** Ward, V.D. **Abstract:** Parkinson's disease is prevalent worldwide but mainly affects the elderly and is rarely seen in women of child-bearing age. The clinical signs and symptoms, the physiological changes of pregnancy, and drug interactions, pose unique challenges for the anaesthetic management of patients with Parkinson's disease who present for delivery. A 36-year-old primigravid woman at 36 weeks' gestation, with Parkinson's disease, presented for pre-anaesthesia assessment prior to elective caesarean section. Her Parkinson's disease had been diagnosed four years previously and was treated with Sinemet (levodopa/carbidopa) and pramipexole. Despite maximum allowable drug doses in pregnancy, she reported disease progression, with right-sided weakness in the upper and lower limbs and an altered gait. Spinal anaesthesia for elective Caesarean section was performed in the sitting position, using 0.5% hyperbaric bupivacaine, morphine 150  $\mu$ g and fentanyl 25  $\mu$ g. The anaesthesia and Caesarean section were uneventful. She was discharged home with a healthy baby on the fourth postoperative day.

Title: Physiotherapists' experiences of respiratory compromise in patients with Parkinson's disease: A qualitative study.

**Citation:** International Journal of Therapy & Rehabilitation; May 2018; vol. 25 (no. 5); p. 223-233 **Author(s):** Walker, Nikki; Cross, Jane

**Background/Aims:** To explore the experiences and perceptions of physiotherapists involved in the care of people with Parkinson's disease and respiratory compromise.

**Methods:** This exploratory qualitative study recruited four physiotherapists who participated in a focus group and completed reflective diaries over a 3-month period. Experiences were explored using Interpretative Phenomenological Analysis.

**Findings:** The study highlights three key themes: application of professional knowledge, application of clinical decision making and challenges to application of care.

**Conclusions:** The results demonstrate sensitive awareness in caring for a dependent and vulnerable population whose key motor signs, compounded by ageing are perceived as influencing the presentation of respiratory compromise. There are descriptions of a reactive response to illness, alongside reflections on the challenges faced when asserting autonomy and recognising where the role of physiotherapy fits within the multidisciplinary team. Sputum clearance is perceived as being a key aspect of this role, although there is uncertainty with regard to the effectiveness and appropriateness of treatment options. Multiple perceived challenges to care provision are highlighted, with key concerns surrounding clinician and patient knowledge levels, maintenance of patient mobility, person-centred care and clarity in the direction of care.

#### Title: Engagement in exercise for people with Parkinson's; What is meaningful?

**Citation:** New Zealand Journal of Physiotherapy; Mar 2018; vol. 46 (no. 1); p. 19-28 **Author(s):** Mulligan, Hilda; Armstrong, Andrew; Francis, Robert; Hitchcock, Holly; Hughes, Erin; Thompson, Jenny; Wilkinson, Amanda; Hale, Leigh

**Abstract:** Whilst it is suggested that exercise is integral in the management of Parkinson's, there is minimal literature exploring this population's perceptions about exercise, and how these perceptions relate to standardised physical outcome measures. This mixed method study explored participants' views on an exercise programme which was offered as part of an intervention in a randomised controlled trial for people with Parkinson's. Participants in the intervention group (n=21) received an exercise programme and a cognitive enrichment programme while the control

group (n=20) continued with usual care. Semi-structured, face to face, audio-recorded individual or group interviews were undertaken with the intervention group and data analysed thematically Quantitative data extracted from the clinical trial included the 6 Minute Walk Test and the mini-Balance Evaluation Systems Test (mini-BESTest). The themes: 'Having trust in professional guidance', and 'An understanding and supportive environment' contributed to the overarching theme of 'A sense of individual empowerment'. Together the themes demonstrated meaningful holistic benefits gained by participants, which differed from the non-statistically significant quantitative results from the clinical trial. Small group tailored exercise effectively addressed multiple cornerstones of health in people with Parkinson's, creating an overall sense of individual empowerment. This study also suggests that research may overemphasise reporting of standardised physical outcomes to the detriment of what participants perceive as meaningful outcomes.

#### Title: Disturbances of Sleep and Alertness in Parkinson's Disease.

**Citation:** Current neurology and neuroscience reports; Apr 2018; vol. 18 (no. 6); p. 29 **Author(s):** Videnovic, Aleksandar

**Purpose of Review:** Parkinson's disease (PD) is the second most common neurodegenerative disorder. Sleep dysfunction is one of the most common non-motor manifestations of PD that has gained significant interest over the past two decades due to its impact on the daily lives of PD patients, poorly understood mechanisms, and limited treatment options. In this review, we discuss the most common sleep disorders in PD and present recent investigations that have broadened our understanding of the epidemiology, clinical manifestations, diagnosis, and treatment of disturbed sleep and alertness in PD.

**Resent Findings:** The etiology of impaired sleep-wake cycles in PD is multifactorial. Sleep dysfunction in PD encompasses insomnia, REM sleep behavior disorder, sleep-disordered breathing, restless legs syndrome, and circadian dysregulation. Despite the high prevalence of sleep dysfunction in PD, evidence supporting the efficacy of treatment strategies is limited. We are at the opportune time to advance our understanding of sleep dysfunction in PD, which will hopefully lead to mechanisms-driven interventions for better sleep and allow us to approach sleep as a modifiable therapeutic target for other non-motor and motor manifestations in PD.

#### Title: Can Postural Control Asymmetry Predict Falls in People With Parkinson's Disease?

Citation: Motor control; Apr 2018 ; p. 1-13

Author(s): Beretta, Victor Spiandor; Barbieri, Fabio Augusto; Orcioli-Silva, Diego; Dos Santos, Paulo Cezar Rocha; Simieli, Lucas; Vitório, Rodrigo; Gobbi, Lilian Teresa Bucken

**Abstract:** This study aimed to determine the relationship between postural asymmetry and falls in Parkinson's disease (PD). In total, 28 patients with PD were included. Postural control was analyzed in bipedal, tandem, and unipedal standing. Center of pressure (CoP) parameters were calculated for both limbs, and asymmetry was assessed using the asymmetry index. Logistic regression was used to predict/classify fallers through postural asymmetry. The Spearman correlation was performed to relate asymmetry and falls number. Poisson regression models were created to predict the number of falls in each condition. The results demonstrated that asymmetry can classify 75% of fallers and nonfallers. Asymmetry in anteroposterior-mean velocity of CoP in unipedal standing was related to the number of falls. Poisson regression showed that anteroposterior-mean velocity of CoP predicts falls in PD, indicating that increased asymmetry results in a greater number of falls. Anteroposterior-mean velocity of CoP seems to be a sensitive parameter to detect falls in PD, mainly during a postural challenging task.

### Title: Excessive daytime sleepiness may be associated with caudate denervation in Parkinson disease.

**Citation:** Journal of the neurological sciences; Apr 2018; vol. 387 ; p. 220-227 **Author(s):** Yousaf, Tayyabah; Pagano, Gennaro; Niccolini, Flavia; Politis, Marios

Abstract: Excessive daytime sleepiness (EDS) is one of the earliest and most common non-motor symptoms of PD, substantially impacting on patient's quality of life. Using the Parkinson's Progression Markers Initiative database, we performed a case-control study to investigate whether dopaminergic deficit is associated with the development of EDS using dopaminergic specific single photon emission computed tomography (SPECT) molecular imaging of dopamine transporters (DAT). We enrolled 84 early de novo PD patients with EDS and 84 without EDS, who were matched for age, gender, age of diagnosis, years of education and disease duration. We assessed and compared semi-quantified [1231]FP-CIT SPECT, and motor and non-motor features among these two groups, alongside exploring the clinical and imaging correlates of EDS and the predictive significance of these markers in the development of EDS. PD patients with EDS had worse nonmotor (MDS-UPDRS Part-I, P < 0.001) and motor (MDS-UPRDS Part-II, P = 0.005) experiences of daily living, as well as worse autonomic (SCOPA-AUT, P < 0.0001) and cognitive (MoCA P = 0.05) function, depression (GDS, P = 0.002), and reduced caudate DAT ([123I]FP-CIT, P = 0.024) compared to PD patients without EDS. Lower caudate [123I]FP-CIT values correlated with higher EDS scores (r = -0.192, P = 0.013). Among patients without EDS, 47 PD patients (56%) developed EDS over a median follow-up of 36 months. Cox multivariate analysis, including all clinical and imaging data available, revealed that abnormal caudate [1231]FP-CIT uptake (P = 0.030) and disease duration (P = 0.018) were predictors for the development of EDS. Although our findings indicate that dopaminergic deficits in the caudate may be associated to EDS in patients with PD. the pathophysiological causality is debateable, given that dopamine caudate denervation may covary with dopaminergic involvement at other targets and with non-dopaminergic involvement.

#### 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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