

Parkinson's Disease Current Awareness Bulletin

February 2018

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Title: Motor imagery training with augmented cues of motor learning on cognitive functions in patients with Parkinsonism

Citation: International Journal of Therapy and Rehabilitation; 2018; vol. 25 (no. 1); p. 13

Author(s): Lama Saad El Din Mahmoud; Nawal Abd EL Raouf Abu Shady; Ehab Shaker Hafez

Objective: Patients with Parkinsonism demonstrate impairments in cognitive functions, such as deficit in attention, planning, and working memory. The objective was to investigate the effect of motor imagery training with augmented cues of motor learning on cognitive functions in patients with Parkinsonism.

Methods: A total of 30 patients from both sexes participated in this study. All of the patients had been diagnosed as idiopathic Parkinson patients experiencing cognitive dysfunction. The patients were randomly divided into two equal groups: the study group (n=15) received motor imagery training with augmented cues of motor learning and the specifically designed intervention. The control group (n=15) received conventional treatment (cognitive remediation therapy). The treatment took place three times a week for 6 weeks (18 sessions). The patients were diagnosed with a computer-based cognitive assessment device (RehaCom).

Findings: The result of this study showed that there was a significant difference between the study and control groups ($p=0.0001$), which indicated that the study group showed a greater improvement than the control group.

Conclusions: Combined effect of motor imagery training with augmented cues of motor learning improved cognitive functions in patients with Parkinsonism.

Title: What can the treatment of Parkinson's disease learn from dementia care; applying a bio-psycho-social approach to Parkinson's disease

Citation: International Journal of Older People Nursing; Dec 2017; vol. 12 (no. 4); p. n

Author(s): Gibson, Grant

Background: Within contemporary medical practice, Parkinson's disease (PD) is treated using a biomedical, neurological approach, which although bringing numerous benefits can struggle to engage with how people with PD experience the disease. A bio-psycho-social approach has not yet been established in PD; however, bio-psycho-social approaches adopted within dementia care practice could bring significant benefit to PD care.

Methods: This paper summarises existing bio-psycho-social models of dementia care and explores how these models could also usefully be applied to care for PD. Specifically, this paper adapts the bio-psycho-social model for dementia developed by Spector and Orrell, to suggest a bio-psycho-social model, which could be used to inform routine care in PD.

Results: Drawing on the biopsychosocial model of Dementia put forward by Spector and Orrell, this paper explores the application of a bio-psycho-social model of PD. This model conceptualises PD as a trajectory, in which several interrelated fixed and tractable factors influence both PD's symptomology and the various biological and psychosocial challenges individuals will face as their disease progresses. Using an individual case study, this paper then illustrates how such a model can assist clinicians in identifying suitable interventions for people living with PD.

Conclusion: This model concludes by discussing how a bio-psycho-social model could be used as a tool in PD's routine care. The model also encourages the development of a theoretical and practical framework for the future development of the role of the PD specialist nurse within routine practice. Implications for practice A biopsychosocial approach to Parkinson's Disease provides an opportunity to move towards a holistic model of care practice which addresses a wider range of factors affecting people living with PD. The paper puts forward a framework through which PD care practice can move towards a biopsychosocial perspective. PD specialist nurses are particularly well placed to adopt such a model within routine clinical practice, and should therefore be encouraged within PD services.

Title: Understanding uncertainty in young-onset Parkinson disease

Citation: Chronic Illness; Dec 2017; vol. 13 (no. 4); p. 288

Author(s): Ravenek, Michael; Rudman, Debbie L; Jenkins, Mary E; Spaulding, Sandi

Objectives: Individuals living with young-onset Parkinson's disease compose a rare subtype of a disease typically associated with older age. Situated within a large grounded theory study exploring information behavior, this paper describes the core category of the theory, i.e. uncertainty.

Methods: Data were collected with 39 individuals living with young-onset Parkinson's disease who took part in in-depth interviews, focus groups and/or an online discussion board. Fourteen autobiographies written by individuals living with young-onset Parkinson's disease were also used as data sources.

Results: Through experiencing young-onset Parkinson's disease, participants were confronted with uncertainty along two main lines. First, they experienced uncertainty with respect to their identities as young- and middle-aged adults, deviating from the idealized age-graded life path marked out within their socio-cultural context. Second, they experienced uncertainty with respect to their functioning, as the heterogeneous nature of Parkinson's progression meant that it would not be possible to chart how their disease would change over time. This uncertainty was associated with feelings of lost control over their lives and increased grief.

Discussion: With a deeper appreciation for how uncertainty is experienced in the lives of those with young-onset Parkinson's disease, health professionals may be better prepared to discuss these issues with patients and provide support and resources.

Title: The use of non-oral therapies in Parkinson's disease.

Citation: Nurse Prescribing; Jan 2018; vol. 16 (no. 1); p. 26-30

Author(s): Price, Jane; Martin, Hannah; Ebenezer, Louise

Abstract: It is widely recognised that with the progression of Parkinson's disease, oral treatments that are used in the management of symptom control may become less effective. This can be due to a number of reasons, but a dysfunctional gastrointestinal tract is increasingly thought to play a major role. Features including severe motor and/or non-motor fluctuations may be due to issues related to gastrointestinal dysfunction, including delayed gastric emptying and reduced absorption of oral medication. The Parkinson's specialist will therefore need to consider alternative treatment approaches that could be beneficial for the person living with Parkinson's disease. This article will provide an overview of treatment

approaches that do not rely on the gastrointestinal system, and these are referred to as non-oral therapies.

Title: Use of a Telehealth System to Enhance a Home Exercise Program for a Person With Parkinson Disease: A Case Report.

Citation: Journal of Neurologic Physical Therapy; Jan 2018; vol. 42 (no. 1); p. 22-29

Author(s): Chatto, Charlotte A.; York, Paul T.; Slade, Catherine P.; Hasson, Scott M.

Background: This case addresses feasibility of a home-based telehealth system to enhance home exercise program (HEP) adherence for a patient with Parkinson disease (PD). We describe START--System for Technology-Augmented Rehabilitation and Training--and discuss outcomes after integrating START into the HEP component of an established therapy protocol, Lee Silverman Voice Technique BIG (LSVT BIG). Case

Description: The participant was a 67-year-old woman with PD at Hoehn and Yahr Stage II.

Intervention: During the first 4 weeks of a 4-month intervention, a physical therapist guided the participant through the LSVT BIG protocol. START was introduced at week 3; the participant was encouraged to complement her daily HEP through the end of the fourth month with START.

Outcomes: Improvements in gait, endurance, balance confidence, and quality of life were observed from the start of the assessment to the end of month 1. By month 4, the participant maintained or improved with respect to these outcomes. Monitored by START, the rate of adherence to her twice-daily HEP prescription was 24%, but her daily participation rate was 78%. The participant's satisfaction with the START system was high, although autonomous feedback provided by START was a limiting concern. There were no technical issues or adverse events reported.

Discussion: This case supports START as a feasible HEP telehealth solution for physical therapy, given that increased long-term exercise adherence may improve health outcomes for people with PD. The outcomes of this case study support further investigation into the use of START for people with PD.

Title: Wellbeing and engagement in occupation for people with Parkinson's disease.

Citation: British Journal of Occupational Therapy; Dec 2017; vol. 80 (no. 12); p. 745-751

Author(s): Kennedy-Behr, Ann; Hatchett, Mikaela

Objective: Wellbeing is an important goal and outcome measure for people living with Parkinson's disease. Previous wellbeing studies have used standardised measures and not explored the individual understandings of wellbeing and how it is affected by engagement in meaningful occupations. The aim of this study was to explore individual definitions of wellbeing and perceived associations between engagement in daily occupations and wellbeing for people living at home with Parkinson's disease.

Method: A qualitative descriptive design was used. Participants completed 24-hour time diaries prior to completing semi-structured interviews which explored participants' individual definitions of wellbeing and perceptions of associations between wellbeing and engagement in occupation. Transcribed interviews were analysed using thematic analysis.

Results: Seventeen participants were recruited and 11 completed interviews. Participants defined wellbeing in terms of independence and satisfaction in being able to contribute to others' lives. Participants identified engagement in meaningful occupation as supporting their wellbeing and maintaining relationships and identity.

Conclusion: This study expands what is known about wellbeing for people living with Parkinson's disease. Understanding the individual meaning of wellbeing and facilitating engagement in the occupations individuals with Parkinson's disease identify as meaningful may assist them to maintain wellbeing despite the presence of disease.

Title: Focusing on heel strike improves toe clearance in people with Parkinson's disease: an observational pilot study.

Citation: Physiotherapy; Dec 2017; vol. 103 (no. 4); p. 485-490

Author(s): Ginis, Pieter; Pirani, Rudi; Basaia, Silvia; Ferrari, Alberto; Chiari, Lorenzo; Heremans, Elke; Canning, Colleen G.; Nieuwboer, Alice

Objectives: To investigate differences in toe clearance between people with PD and age-matched healthy elderly (HE) during comfortable walking and to study the effects of dual-tasking and the use of an attentional strategy emphasizing heel strike on toe clearance.

Design: Observational cross-sectional study.

Setting: Camera-based 3D gait laboratory.

Participants: Ten persons with PD (Hoehn and Yahr I to III) having mild gait disturbances and 10 HE.

Interventions: Participants walked for two minutes under three conditions at comfortable pace: single-task walking, attending to heel strike during single-task walking, and dual-task walking.

Main outcome measures: Minimal and maximal toe clearance; foot strike angle with the ground. Results People with PD had less maximal toe clearance in the end of the swing phase and a smaller foot strike angle than HE during all three walking conditions. Impairments significantly diminished during heel strike focused walking improving performance to equal the HE. Heel strike focused walking resulted in an increased minimal toe clearance and a longer duration of end swing phase when compared to walking with and without a dual-task. The attentional strategy to focus on heel strike improved the stride length when compared to dual-task walking. Surprisingly, minimal toe clearance did not differ between PD and HE in any of the conditions and there were no dual-task effects on toe clearance.

Conclusion: These findings provide evidence favoring the potential incorporation of an attentional strategy focusing on the heel strike in PD gait rehabilitation.

Title: Understanding Parkinson's through visual narratives: "I'm not Mrs. Parkinson's".

Citation: British Journal of Occupational Therapy; Feb 2018; vol. 81 (no. 2); p. 90-100

Author(s): Lutz, Sara G.; Holmes, Jeffrey D.; Rudman, Debbie Laliberte; Johnson, Andrew M.; LaDonna, Kori A.; Jenkins, Mary E.

Objective: Although it is accepted that individuals with Parkinson's disease must navigate challenges such as receiving their diagnosis and changing daily occupations, little is known

about how they navigate. The purpose of this study is to deepen the current understanding of the experience of living with Parkinson's disease and its implications for occupation through a narrative visual methodology (photo-elicitation).

Method: Six individuals with Parkinson's disease were asked to take photographs and share verbal narrative accounts to illustrate their experience of living with Parkinson's disease.

Findings: Results highlight the interrelationship between occupation and identity, as many of the participants' stories were interpreted as foregrounding the negotiation of occupation, and how such negotiation shaped their sense of identity. Overall, three major themes were identified: (1) Framing the meaning of Parkinson's disease (accepting the disease as part of who they were); (2) Negotiating engagement in occupation (ongoing deliberation over whether to continue engaging in certain aspects of life as Parkinson's disease progressed); and (3) Being ready to accept changes that impact personal or social identity (readiness to accept help and to identify as someone with Parkinson's disease).

Conclusion: Attending to insights regarding the lived experience of Parkinson's disease will enhance quality of care through informing an enriched client-centered, occupation-based approach.

Title: Tapeworm medicine may hold clue to new treatments for Parkinson's.

Citation: Nursing Standard; Jan 2018; vol. 32 (no. 23); p. 17-17

Abstract: The article reports on a study which found that new treatments for Parkinson's disease could be developed from a molecule found in a medicine used to treat tapeworm infections.

Title: Effects of Ai Chi on balance, quality of life, functional mobility, and motor impairment in patients with Parkinson's disease.

Citation: Disability & Rehabilitation; Apr 2018; vol. 40 (no. 7); p. 791-797

Author(s): Kurt, Emine Eda; Büyükturan, Buket; Büyükturan, Öznur; Erdem, Hatice Rana; Tuncay, Figen

Objective: In this study, we aimed to investigate effects of Ai Chi on balance, functional mobility, health-related quality of life, and motor impairment in patients with Parkinson's disease.

Method: This study was conducted as an open-label randomized controlled trial (ISRCTN26292510) with repeated measures. Forty patients with Parkinson's disease stages 2 to 3 according to the Hoehn and Yahr Scale were randomly allocated to either an Ai Chi exercise group or a land-based exercise control group for 5 weeks. Balance was measured using the Biodex-3,1 and the Berg Balance Scale. Functional mobility was evaluated using the Timed Up and Go Test. Additionally, health-related quality of life and motor activity were assessed with the Parkinson's Disease Questionnaire-39 and the Unified Parkinson's Disease Rating Scale-III.

Results: Although patients in both groups showed significant improvement in all outcome variables, improvement of dynamic balance was significantly greater in the Ai Chi group ($p < 0.001$), Berg Balance Scale ($p < 0.001$), Timed Up and Go Test ($p = 0.002$), Parkinson's Disease Questionnaire-39 ($p < 0.001$), Unified Parkinson's Disease Rating Scale-III ($p < 0.001$).

Conclusion: Our results suggest that an Ai Chi exercise program improves balance, mobility, motor ability, and quality of life. In addition, Ai Chi exercise was more effective as an intervention than land-based exercise in patients with mild to moderate Parkinson's disease.

Implications for rehabilitation: Ai Chi exercises (aquatic exercises) may help improve balance, functional mobility, health-related quality of life, and motor ability in patients with mild to moderate Parkinson's disease more efficiently than similar land-based exercises. Ai Chi exercises should be considered as a rehabilitation option for treatment of patients with mild or moderate Parkinson's disease.

Title: Differentiating Between Apathy and Depression in Patients With Parkinson Disease Dementia.

Citation: American Journal of Alzheimer's Disease & Other Dementias; Feb 2018; vol. 33 (no. 1); p. 30-34

Author(s): Camargo, Carlos Henrique Ferreria; Serpa, Rafael Arthur; Jobbins, Vinícius Aguiar; Berbetz, Frederico Antonio; Sabatini, Jivago Szpoganicz

Abstract: In Parkinson disease (PD), apathy and depression often overlap, making it difficult to differentiate between them. This study sought to analyze apathy and depression in patients with PD dementia (PDD). Forty patients were diagnosed with PDD using the Movement Disorder Society criteria. A statistically significant correlation was identified between worsening dementia and an improvement in depression ($r = .3695$; $r^2 = .1365$, 95% confidence interval [CI]: 0.0985 to 0.5894, $P = .0044$) and between worsening dementia and worsening apathy ($r = -.2578$, $r^2 = .0664$, 95% CI: -0.5025 to $.0251$, $P = .036$). Depression had a greater correlation with advanced motor symptoms ($r = .4988$, $r^2 = .2438$, 95% CI: 0.2218-0.7013, $P = .0005$). In conclusion, depression was associated with less advanced PDD and more intense motor features, while apathy was associated with more advanced cognitive impairment.

Title: Melanoma skin cancer and Parkinson's linked.

Citation: Mayo Clinic Health Letter; Feb 2018; vol. 36 (no. 2); p. 4-4

Abstract: The article reports that people who have melanoma are 4.2 times more likely to develop Parkinson's disease than are people in the general population, according to a study from health care company Mayo Clinic.

Title: Effects of Transcranial Direct Current Stimulation Plus Physical Therapy on Gait in Patients With Parkinson Disease: A Randomized Controlled Trial.

Citation: American Journal of Physical Medicine & Rehabilitation; Jan 2018; vol. 97 (no. 1); p. 7-15

Author(s): Yotnuengnit, Pattarapol; Bhidayasiri, Roongroj; Donkhan, Rattana; Chaluaysrimuang, Juthamas; Piravej, Krisna

Objective: The aim of the study was to study the combined effects of transcranial direct current stimulation (tDCS) and physical therapy on the walking ability of patients with Parkinson disease (PD).

Study Design: The study used an experimental, double-blinded, randomized controlled trial.

Results: After intervention, group 1 (only tDCS) demonstrated a significant increase in gait speed by 0.13 to 0.14 m/sec (17.8%-19.2%) and an increase in step length by 5.9 to 6.1 cm (14.0%-14.5%), whereas group 2 (tDCS and physical therapy) revealed a significant increase in gait speed by 0.10 to 0.13 m/sec (14.9%-19.4%) and step length by 4.5 to 5.4 cm (10.6%-12.8%) and group 3 (sham tDCS and physical therapy) showed a significant increase in gait speed by 0.09 to 0.14 m/sec (13.0%-20.3%) and step length by 3.0 to 5.4 cm (6.8%-12.3%). All these results lasted for at least 8 wks after intervention. Upon comparing the parameters of gait among the three groups at every follow-up visit, no significant difference was observed.

Conclusions: Anodal tDCS or physical therapy could be used alone or together as a combination treatment to improve the walking speed of patients with Parkinson disease. The effects lasted for approximately 8 wks. The combination treatment was not superior to the use of tDCS or physical therapy alone.

Title: Aquatic obstacle training improves freezing of gait in Parkinson's disease patients: a randomized controlled trial.

Citation: Clinical Rehabilitation; Jan 2018; vol. 32 (no. 1); p. 29-36

Author(s): Zhu, Zhizhong; Yin, Miaomiao; Cui, Liling; Zhang, Ying; Hou, Weijia; Li, Yaqing; Zhao, Hua

Objective: Our aim was to evaluate the effect of aquatic obstacle training on balance parameters in comparison with a traditional aquatic therapy in patients with Parkinson's disease.

Design: A randomized single-blind controlled trial.

Setting: Outpatients in the rehabilitation department.

Subjects: A total of 46 patients with Parkinson's disease in Hoehn–Yahr stage 2–3.

Interventions: Participants were randomly assigned to (1) aquatic therapy or (2) obstacle aquatic therapy. All participants undertook aquatic therapy for 30 minutes, five times per week for six weeks.

Main measures: The Freezing of Gait Questionnaire, Functional Reach Test, Timed Up and Go test and Berg Balance Scale were assessed at baseline, posttreatment and at six-month follow-up.

Results: Both groups of patients had improved primary outcomes after the training program. A between-group comparison of the changes revealed that obstacle aquatic therapy was significantly higher for the Freezing of Gait Questionnaire (after treatment: 8.7 ± 3.3 vs 6.2 ± 2.1 , $P = 0.004$; posttest: 7.7 ± 3.1 vs 5.3 ± 2.0 , $P = 0.003$) and Timed Up and Go test (after treatment: 17.1 ± 2.9 vs 13.8 ± 1.9 , $P < 0.001$; posttest: 16.3 ± 2.8 vs 12.9 ± 1.4 , $P < 0.001$).

Conclusion: Obstacle aquatic therapy in this protocol seems to be more effective than traditional protocols for gait and balance in patients with Parkinson's disease, and the effect lasts for six months.

Title: Motor imagery training with augmented cues of motor learning on cognitive functions in patients with Parkinsonism.

Citation: International Journal of Therapy & Rehabilitation; Jan 2018; vol. 25 (no. 1); p. 13-19

Author(s): Mahmoud, Lama Saad El-Din; Shady, Nawal Abd EL-Raouf Abu; Hafez, Ehab Shaker

Objective: Patients with Parkinsonism demonstrate impairments in cognitive functions, such as deficit in attention, planning, and working memory. The objective was to investigate the effect of motor imagery training with augmented cues of motor learning on cognitive functions in patients with Parkinsonism.

Methods: A total of 30 patients from both sexes participated in this study. All of the patients had been diagnosed as idiopathic Parkinson patients experiencing cognitive dysfunction. The patients were randomly divided into two equal groups: the study group (n=15) received motor imagery training with augmented cues of motor learning and the specifically designed intervention. The control group (n=15) received conventional treatment (cognitive remediation therapy). The treatment took place three times a week for 6 weeks (18 sessions). The patients were diagnosed with a computer-based cognitive assessment device (RehaCom).

Findings: The result of this study showed that there was a significant difference between the study and control groups ($p=0.0001$), which indicated that the study group showed a greater improvement than the control group.

Conclusions: Combined effect of motor imagery training with augmented cues of motor learning improved cognitive functions in patients with Parkinsonism.

Title: Sentence-Level Movements in Parkinson's Disease: Loud, Clear, and Slow Speech.

Citation: Journal of Speech, Language & Hearing Research; Dec 2017; vol. 60 (no. 12); p. 3426-3440

Author(s): Kearney, Elaine; Giles, Renuka; Haworth, Brandon; Faloutsos, Petros; Baljko, Melanie; Yana Yunusova

Objective: To further understand the effect of Parkinson's disease (PD) on articulatory movements in speech and to expand our knowledge of therapeutic treatment strategies, this study examined movements of the jaw, tongue blade, and tongue dorsum during sentence production with respect to speech intelligibility and compared the effect of varying speaking styles on these articulatory movements.

Method: Twenty-one speakers with PD and 20 healthy controls produced 3 sentences under normal, loud, clear, and slow speaking conditions. Speech intelligibility was rated for each speaker. A 3-dimensional electromagnetic articulograph tracked movements of the articulators. Measures included articulatory working spaces, ranges along the first principal component, average speeds, and sentence durations.

Results: Speakers with PD demonstrated significantly smaller jaw movements as well as shorter than normal sentence durations. Between-speaker variation in movement size of the jaw, tongue blade, and tongue dorsum was associated with speech intelligibility. Analysis of speaking conditions revealed similar patterns of change in movement measures across groups and articulators: larger than normal movement sizes and faster speeds for loud

speech, increased movement sizes for clear speech, and larger than normal movement sizes and slower speeds for slow speech.

Conclusions: Sentence-level measures of articulatory movements are sensitive to both disease-related changes in PD and speaking-style manipulations

Title: Patient Preferences for Device-Aided Treatments Indicated for Advanced Parkinson Disease.

Citation: Value in Health; Dec 2017; vol. 20 (no. 10); p. 1383-1393

Author(s): Marshall, Thomas; Pugh, Amy; Fairchild, Angelyn; Hass, Steven

Background: Effective treatment for advanced Parkinson disease (PD) uncontrolled with oral medication includes device-aided therapies such as deep brain stimulation (DBS) and continuous levodopa-carbidopa infusion to the duodenum via a portable pump.

Objective: Our objective was to quantify patient preferences for attributes of these device-aided treatments.

Methods: We administered a Web-enabled survey to 401 patients in the United States. A discrete-choice experiment (DCE) was used to evaluate patients' willingness to accept tradeoffs among efficacy, tolerability, and convenience of alternative treatments. DCE data were analyzed using random-parameters logit. Best-worst scaling (BWS) was used to elicit the relative importance of device-specific attributes. Conditional logit was used to analyze the BWS data. We tested for differences in preferences among subgroups of patients.

Results: Improving ability to think clearly was twice as important as a 6-hour-per-day improvement in control of movement symptoms. After controlling for efficacy, treatment delivered via portable infusion pump was preferred over DBS, and both devices were preferred to oral therapy with poor symptom control. Patients were most concerned about device attributes relating to risk of stroke, difficulty thinking, and neurosurgery. Avoiding surgery to insert a wire in the brain was more important than avoiding surgery to insert a tube into the small intestine. Some differences in preferences among subgroups were statistically, but not qualitatively, significant.

Conclusions: This study clarifies the patient perspective in therapeutic choices for advanced PD. These findings may help improve communication between patients and providers and also provide evidence on patient preferences to inform regulatory and access decisions.

Title: What can the treatment of Parkinson's disease learn from dementia care; applying a bio-psycho-social approach to Parkinson's disease.

Citation: International Journal of Older People Nursing; Dec 2017; vol. 12 (no. 4)

Author(s): Gibson, Grant

Background: Within contemporary medical practice, Parkinson's disease (PD) is treated using a biomedical, neurological approach, which although bringing numerous benefits can struggle to engage with how people with PD experience the disease. A bio-psycho-social approach has not yet been established in PD; however, bio-psycho-social approaches adopted within dementia care practice could bring significant benefit to PD care.

Methods: This paper summarises existing bio-psycho-social models of dementia care and explores how these models could also usefully be applied to care for PD. Specifically, this

paper adapts the bio-psycho-social model for dementia developed by Spector and Orrell (), to suggest a bio-psycho-social model, which could be used to inform routine care in PD.

Results: Drawing on the biopsychosocial model of Dementia put forward by Spector and Orrell (), this paper explores the application of a bio-psycho-social model of PD. This model conceptualises PD as a trajectory, in which several interrelated fixed and tractable factors influence both PD's symptomology and the various biological and psychosocial challenges individuals will face as their disease progresses. Using an individual case study, this paper then illustrates how such a model can assist clinicians in identifying suitable interventions for people living with PD.

Conclusion: This model concludes by discussing how a bio-psycho-social model could be used as a tool in PD's routine care. The model also encourages the development of a theoretical and practical framework for the future development of the role of the PD specialist nurse within routine practice.

Implications for practice: A biopsychosocial approach to Parkinson's Disease provides an opportunity to move towards a holistic model of care practice which addresses a wider range of factors affecting people living with PD. The paper puts forward a framework through which PD care practice can move towards a biopsychosocial perspective. PD specialist nurses are particularly well placed to adopt such a model within routine clinical practice, and should therefore be encouraged within PD services.

Title: Early weight loss in parkinsonism predicts poor outcomes: Evidence from an incident cohort study.

Citation: Neurology; Nov 2017; vol. 89 (no. 22); p. 2254-2261

Author(s): Cumming, Kirsten; Macleod, Angus D.; Myint, Phyo K.; Counsell, Carl E.

Objective: To compare weight change over time in patients with Parkinson disease (PD), those with atypical parkinsonism, and matched controls; to identify baseline factors that influence weight loss in parkinsonism; and to examine whether it predicts poor outcome.

Methods: We analyzed data from the Parkinsonism Incidence in North-East Scotland (PINE) study, an incident, population-based prospective cohort of parkinsonian patients and age- and sex-matched controls with annual follow-up. Mixed-model analysis described weight change in patients with PD, those with atypical parkinsonism, and controls. Baseline determinants of sustained clinically significant weight loss (>5% loss from baseline) and associations between early sustained weight loss and death, dementia, and dependency in parkinsonism were studied with Cox regression.

Results: A total of 515 participants (240 controls, 187 with PD, 88 with atypical parkinsonism) were followed up for a median of 5 years. At diagnosis, atypical parkinsonian patients had lower body weights than patients with PD, who were lighter than controls. Patients with PD lost weight more rapidly than controls, and weight loss was most rapid in atypical parkinsonism. After multivariable adjustment for potential confounders, only age was independently associated with sustained clinically significant weight loss (hazard ratio [HR] for 10-year age increase 1.83, 95% confidence interval [CI] 1.44-2.32). Weight loss occurring within 1 year of diagnosis was independently associated with increased risk of dependency (HR 2.11, 95% CI 1.00-4.42), dementia (HR 3.23, 95% CI 1.40-7.44), and death (HR 2.23, 95% CI 1.46-3.41).

Conclusion: Weight loss occurs in early parkinsonism and is greater in atypical parkinsonism than in PD. Early weight loss in parkinsonism has prognostic significance, and targeted dietary interventions to prevent it may improve long-term outcomes

Title: Prediction of Falls in Subjects Suffering From Parkinson Disease, Multiple Sclerosis, and Stroke.

Citation: Archives of physical medicine and rehabilitation; Jan 2018

Author(s): Beghi, Ettore; Gervasoni, Elisa; Pupillo, Elisabetta; Bianchi, Elisa; Montesano, Angelo; Aprile, Irene; Agostini, Michela; Rovaris, Marco; Cattaneo, Davide; NEUROFALL Group

Objective: To compare the risk of falls and fall predictors in patients with Parkinson disease (PD), multiple sclerosis (MS), and stroke using the same study design.

Design: Multicenter prospective cohort study.

Setting: Institutions for physical therapy and rehabilitation.

Participants: Patients (N=299) with PD (n=94), MS (n=111), and stroke (n=94) seen for rehabilitation.

Interventions: Not applicable.

Main Outcome Measures: Functional scales were applied to investigate balance, disability, daily performance, self-confidence with balance, and social integration. Patients were followed for 6 months. Telephone interviews were organized at 2, 4, and 6 months to record falls and fall-related injuries. Incidence ratios, Kaplan-Meier survival curves, and Cox proportional hazards models were used.

Results: Twenty-two patients (47.1%) fell at least once; 82 (31.7%) were recurrent fallers and 44 (17.0%) suffered injuries; and 16%, 32%, and 40% fell at 2, 4, and 6 months. Risk of falls was associated with disease type (PD, MS, and stroke in decreasing order) and confidence with balance (Activities-specific Balance Confidence [ABC] scale). Recurrent fallers were 7%, 15%, and 24% at 2, 4, and 6 months. The risk of recurrent falls was associated with disease type, high educational level, and ABC score. Injured fallers were 3%, 8%, and 12% at 2, 4, and 6 months. The only predictor of falls with injuries was disease type (PD).

Conclusions: PD, MS, and stroke carry a high risk of falls. Other predictors include perceived balance confidence and high educational level.

Title: Speech and Communication Changes Reported by People with Parkinson's Disease.

Citation: Folia phoniatica et logopaedica : official organ of the International Association of Logopedics and Phoniatics (IALP); Jan 2018; vol. 69 (no. 3); p. 131-141

Author(s): Schalling, Ellika; Johansson, Kerstin; Hartelius, Lena

Background: Changes in communicative functions are common in Parkinson's disease (PD), but there are only limited data provided by individuals with PD on how these changes are perceived, what their consequences are, and what type of intervention is provided.

Objective: To present self-reported information about speech and communication, the impact on communicative participation, and the amount and type of speech-language pathology services received by people with PD.

Citation: Folia phoniatica et logopaedica : official organ of the International Association of Logopedics and Phoniatics (IALP); Jan 2018; vol. 69 (no. 3); p. 131-141

Methods: Respondents with PD recruited via the Swedish Parkinson's Disease Society filled out a questionnaire accessed via a Web link or provided in a paper version.

Results: Of 188 respondents, 92.5% reported at least one symptom related to communication; the most common symptoms were weak voice, word-finding difficulties, imprecise articulation, and getting off topic in conversation. The speech and communication problems resulted in restricted communicative participation for between a quarter and a third of the respondents, and their speech caused embarrassment sometimes or more often to more than half. Forty-five percent of the respondents had received speech-language pathology services.

Conclusions: Most respondents reported both speech and language symptoms, and many experienced restricted communicative participation. Access to speech-language pathology services is still inadequate. Services should also address cognitive/linguistic aspects to meet the needs of people with PD.

Title: Constipation in Parkinson's Disease: a Nuisance or Nuanced Answer to the Pathophysiological Puzzle?

Citation: Current gastroenterology reports; Jan 2018; vol. 20 (no. 1); p. 1

Author(s): Sharma, Amol; Kurek, Julie; Morgan, John C; Wakade, Chandramohan; Rao, Satish S C

Abstract: Chronic constipation is a common, nonmotor, and prodromal symptom in Parkinson's disease (PD). Its underlying neuropathology may provide pathophysiological insight into PD. Here, we critically review what is currently known about the neuroanatomical and brain-gut interactions, and the origin and progression of Lewy pathology (LP) at three levels-brain/brainstem, spinal cord, and enteric nervous system. Many recent studies have illustrated the challenges of examining LP in tissues obtained from colon biopsies of PD patients. Large-scale epidemiological studies have not confirmed the widely accepted Braakpostula. In this review, we propose an alternative origin and route of spread of LP in PD. We describe novel, noninvasive neurophysiological testing that could advance the understanding of LP and complex bidirectional brain-pelvic floor neural pathways in PD-a true disease model of a neurogastrointestinal disorder. This review may provide the impetus for future studies investigating gut and brain interaction and constipation in PD.

Title: Parkinson's disease and the risk of epileptic seizures.

Citation: Annals of neurology; Jan 2018

Author(s): Gruntz, Katharina; Bloechliger, Marlene; Becker, Claudia; Jick, Susan S; Fuhr, Peter; Meier, Christoph R; Rüegg, Stephan

Objective: To assess the association between incident Parkinson's disease (PD) and subsequent incident epileptic seizures.

Methods: We conducted a retrospective cohort study with a nested case-control analysis using data from the UK Clinical Practice Research Datalink. We identified patients aged ≥ 40 years with an incident diagnosis of PD between 1995 and 2016 and a matched comparison group of PD-free individuals. We calculated crude incidence rates (IRs) with 95% confidence intervals (CIs) of epileptic seizures in PD patients and the PD-free comparison group, and corresponding crude incidence rate ratios (IRRs). In the nested case-control analysis, we calculated adjusted odds ratios (adj. ORs) of incident PD among cases with incident epileptic seizures and seizure-free controls overall and stratified by various, seizure-provoking comorbidities.

Results: Among 23,086 incident PD patients and 92,343 PD-free individuals, we identified 898 patients with incident epileptic seizures. The crude IR of epileptic seizures in PD patients was 266.7/100,000 person years (95% CI 235.6-297.7), and in PD-free individuals 112.4/100,000 person years (95% CI 103.5-121.3) [IRR: 2.37, 95% CI 2.06-2.37]. The adj. OR of epileptic seizures was 1.68 [95% CI 1.43-1.98] in PD patients compared with PD-free individuals. PD patients with comorbid brain disorders (adj. OR 12.36 [95% CI 8.74-17.48]) or with >1 seizure-provoking comorbidity (adj. OR 13.24 [95% CI 10.15-17.25]) were at the highest risk of epileptic seizures compared with PD-free individuals with no seizure-provoking comorbidities. Interpretation This study suggests that incident PD is associated with an increased risk of incident epileptic seizures.

Title: Parkinson disease with and without Dementia: A prevalence study and future projections.

Citation: Movement disorders: official journal of the Movement Disorder Society; Jan 2018

Author(s): Savica, Rodolfo; Grossardt, Brandon R; Rocca, Walter A; Bower, James H

Background: Limited population-based information is available on the co-occurrence of dementia and PD. However, projecting the prevalence of PD with and without dementia during the next 50 years is crucial for planning public-health and patient-care initiatives.

Objective: The objective of this study was to project the prevalence of PD with and without dementia in the United States by 2060.

Methods: We used the Rochester Epidemiology Project medical records-linkage system to identify all persons with PD with or without dementia residing in Olmsted County, Minnesota, on January 1, 2006. A movement disorders specialist reviewed the complete medical records of each person to confirm the presence of PD. We calculated the age- and sex-specific prevalence of PD with and without dementia and projected U.S. prevalence through 2060. RESULTS We identified 296 persons with PD with and without dementia on the prevalence date (187 men, 109 women); the overall prevalence increased with age from 0.01% (30-39 years) to 2.83% (≥ 90 years). The prevalence of PD without dementia increased with age from 0.01% (30-39 years) to 1.25% (≥ 90 years). The prevalence of PD with dementia increased with age from 0.10% (60-69 years) to 1.59% (≥ 90 years). The prevalence was higher in men than in women for all subtypes and all age groups. We project by 2060 an approximate doubling of the number of persons with PD without dementia and a tripling of the number of persons with PD with dementia in the United States.

Conclusion: The prevalence of PD with and without dementia increases with age and is higher in men than women. We project that the number of persons with PD in the United States will increase substantially by 2060.

Title: Comparison of the Efficacy of Different Drugs on Non-Motor Symptoms of Parkinson's Disease: a Network Meta-Analysis.

Citation: Cellular physiology and biochemistry: international journal of experimental cellular physiology, biochemistry, and pharmacology; Jan 2018; vol. 45 (no. 1); p. 119-130

Author(s): Li, Bao-Dong; Cui, Jing-Jun; Song, Jia; Qi, Ce; Ma, Pei-Feng; Wang, Ya-Rong; Bai, Jing

Objective: A network meta-analysis is used to compare the efficacy of ropinirole, rasagiline, rotigotine, entacapone, apomorphine, pramipexole, sumanirole, bromocriptine, piribedil and levodopa, with placebo as a control, for non-motor symptoms in Parkinson's disease (PD).

Methods: PubMed, Embase and the Cochrane Library were searched from their establishment dates up to January 2017 for randomized controlled trials (RCTs) investigating the efficacy of the above ten drugs on the non-motor symptoms of PD. A network meta-analysis combined the evidence from direct comparisons and indirect comparisons and evaluated the pooled weighted mean difference (WMD) values and surfaces under the cumulative ranking curves (SUCRA). The network meta-analysis included 21 RCTs.

Results: The analysis results indicated that, using the United Parkinson's Disease Rating Scale (UPDRS) III, the efficacies of placebo, ropinirole, rasagiline, rotigotine, entacapone, pramipexole, sumanirole and levodopa in treating PD were lower than that of apomorphine (WMD = -10.90, 95% CI = -16.12~-5.48; WMD = -11.85, 95% CI = -17.31~-6.16; WMD = -11.15, 95% CI = -16.64~-5.04; WMD = -11.70, 95% CI = -16.98~-5.60; WMD = -11.04, 95% CI = -16.97~-5.34; WMD = -13.27, 95% CI = -19.22~-7.40; WMD = -10.25, 95% CI = -15.66~-4.32; and WMD = -11.60, 95% CI = -17.89~-5.57, respectively). Treatment with ropinirole, rasagiline, rotigotine, entacapone, pramipexole, sumanirole, bromocriptine, piribedil or levodopa, with placebo as a control, on PD exhibited no significant differences on PD symptoms when the UPDRS II was used for evaluation. Moreover, using the UPDRS III, the SUCRA values indicated that a pomorphine had the best efficacy on the non-motor symptoms of PD (99.0%). Using the UPDRS II, the SUCRA values for ropinirole, rasagiline, rotigotine, entacapone, pramipexole, sumanirole, bromocriptine, piribedil and levodopa treatments, with placebo as a control, indicated that bromocriptine showed the best efficacy on the non-motor symptoms of PD (75.6%).

Conclusion: Among ropinirole, rasagiline, rotigotine, entacapone, apomorphine, pramipexole, sumanirole, bromocriptine, piribedil and levodopa, with placebo as a control, apomorphine may be the most efficacious drug for therapy in treating the non-motor symptoms of PD.

Title: Experiences of Persons With Parkinson's Disease Engaged in Group Therapeutic Singing.

Citation: Journal of music therapy; Jan 2018; vol. 54 (no. 4); p. 405-431

Author(s): Stegemöller, Elizabeth L; Hurt, Tera R; O'Connor, Margaret C; Camp, Randie D; Green, Chrishelda W; Pattee, Jenna C; Williams, Ebony K

Background: Parkinson's disease (PD) is a progressive neurodegenerative disorder that leads to altered neural control of movement, including the control of voice, respiration, and swallowing. There is a prevalent need to provide therapy for voice, respiration, and swallowing difficulties because current pharmacological and surgical treatments do not effectively treat these impairments. Previous research has demonstrated that singing may be a treatment option to target voice, respiratory, and swallowing impairments, as well as quality of life. However, participants' perspectives related to reasons for enrolling and engaging in programs as well as evaluation of singing programs have been neglected.

Objective: The purpose of this descriptive study was thus to solicit participants' views of their involvement in a group singing intervention (GSI) led by credentialed music therapists.

Methods: Twenty persons with PD were interviewed 4 to 6 months after completing the singing intervention. Participants were asked about 1) why they chose to participate, 2) what were the beneficial and non-beneficial aspects of participating, and 3) how to improve overall design and delivery of the GSI.

Results: Using content analysis procedures, we learned that participants regarded their involvement in the study as mutually beneficial, fun, and engaging. Participants appreciated the fellowship with other persons with PD and offered minimal constructive criticism.

Conclusions: This study provided greater insight into how a therapeutic singing program may benefit participants and positively impact their lives.

Title: Towards remote monitoring of Parkinson's disease tremor using wearable motion capture systems.

Citation: Journal of the neurological sciences; Jan 2018; vol. 384 ; p. 38-45

Author(s): Delrobaei, Mehdi; Memar, Sara; Pieterman, Marcus; Stratton, Tyler W; Mclsaac, Kenneth; Jog, Mandar

Abstract: The management of movement disorders is shifting from a centralized-clinical assessment towards remote monitoring and individualized therapy. While a variety of treatment options are available, ranging from pharmaceutical drugs to invasive neuromodulation, the clinical effects are inconsistent and often poorly measured. For instance, the lack of remote monitoring has been a major limitation to optimize therapeutic interventions for patients with Parkinson's Disease (PD). In this work, we focus on the assessment of full-body tremor as the most recognized PD symptom. Forty PD and twenty two healthy participants were recruited. The main assessment tool was an inertial measurement unit (IMU)-based motion capture system to quantify full-body tremor and to separate tremor-dominant from non-tremor-dominant PD patients as well as from healthy controls. We developed a new measure and evaluated its clinical utility by correlating the results with the Unified Parkinson's Disease Rating Scale (UPDRS) scores as the gold standard. Significant correlation was observed between the UPDRS and the tremor severity scores for the selected tasks. The results suggest that it is feasible and clinically meaningful to utilize the suggested objective tremor score for the assessment of PD patients. Furthermore, this portable assessment tool could potentially be used in the home environment to monitor PD tremor and facilitate optimizing therapeutic interventions.

Title: Parkinson's Disease from the Gut.

Citation: Brain research; Jan 2018

Author(s): Liddle, Rodger A

Abstract: Parkinson's disease (PD) is a debilitating neurodegenerative condition associated with tremor, rigidity, dementia, and gastrointestinal symptoms such as constipation, nausea and vomiting. The pathological hallmarks of PD are Lewy bodies in the brain and peripheral nerves. The major constituent of Lewy bodies is the neuronal protein α -synuclein. Misfolding of α -synuclein confers prion-like properties enabling its spread from cell to cell. Misfolded α -synuclein also serves as a template and induces misfolding of endogenous α -synuclein in recipient cells leading to the formation of oligomers that progress to fibrils and eventually Lewy bodies. Accumulating evidence suggests that PD may arise in the gut. Clinically, gastrointestinal symptoms often appear in patients before other neurological signs and aggregates of α -synuclein have been found in enteric nerves of PD patients. Importantly, patients undergoing vagotomy have a reduced risk of developing PD. Experimentally, abnormal forms of α -synuclein appear in enteric nerves before they appear in the brain and injection of abnormal α -synuclein into the wall of the intestine spreads to the vagus nerve. Ingested toxins and alterations in gut microbiota can induce α -synuclein aggregation and

PD, however, it is not known how PD starts. Recently, it has been shown that sensory cells of the gut known as enteroendocrine cells (EECs) contain α -synuclein and synapse with enteric nerves, thus providing a connection from the gut to the brain. It is possible that abnormal α -synuclein first develops in EECs and spreads to the nervous system.

Title: Patient-centered integrated healthcare improves quality of life in Parkinson's disease patients: a randomized controlled trial.

Citation: Journal of neurology; Feb 2018

Author(s): Eggers, Carsten; Dano, R; Schill, J; Fink, G R; Hellmich, M; Timmermann, L; CPN study group

Background: Improving quality of life (QoL) is a key issue when dealing with Parkinson's disease (PD). Integrative care shows potential to achieve improvements in QoL. Here, we analyzed whether a community-based, open-label, integrated approach improves QoL in PD patients.

Methods: PD patients were screened for eligibility and evaluated by a university-based PD specialist, a PD nurse, and a general neurologist at a local practice. Patients were randomly assigned to a control group (CG), receiving standard German neurological treatment including a baseline assessment and follow-up visit at 6 months, or an interventional group (IG) who received an individually tailored therapy plan and additional home visits. Patients and investigators were not blinded for either intervention. Primary outcome analysis compared the differential change of PDQ-39 from baseline to 6-month follow-up between CG and IG. Between-group changes in mood, motor/non-motor functioning, and cognition were secondary outcomes. RESULTS 300 patients were included and randomized equally to IG and CG. 132 IG and 125 CG patients had a valid PDQ-39 at follow-up and qualified for the modified ITT analysis. PDQ-39 improved more in IG compared to CG [2.2 points (95% CI - 4.4 to 0.1); $p = 0.044$]. Likewise, change scores between IG and CG favored IG for UPDRS III ($p < 0.001$, mean change 3.3, 95% CI - 4.9 to - 1.7) and PD-NMS ($p < 0.001$, mean change 11.3, 95% CI - 17.1 to - 5.5).

Conclusions: Data show that an integrated approach, compared to regular PD care, improves QoL as well as motor and nonmotor PD symptoms over 6 months. Future studies need to address the cost-benefit ratio and whether positive effects can be maintained beyond intervention.

Title: Link Between Parkinson Disease and Rapid Eye Movement Sleep Behavior Disorder With Dream Enactment: Possible Implications for Early Rehabilitation.

Citation: Archives of physical medicine and rehabilitation; Feb 2018; vol. 99 (no. 2); p. 411-415

Author(s): Johnson, Brian P; Westlake, Kelly P

Abstract: The purpose of this article is 2-fold: first, to inform readers of the link between the loss of motor inhibition during rapid eye movement (REM) sleep dreaming, diagnosed as REM sleep behavior disorder, and the future onset of neurodegenerative disorders, such as Parkinson disease and dementia with Lewy bodies; it has been reported that motor disinhibition during REM sleep often precedes the onset of these disorders by years or even decades; second, to consider that the identification of REM sleep behavior disorder and the early involvement of rehabilitation and/or development of home exercise plans may aid in

prolonging and even increasing function, independence, and quality of life, should such neurodegenerative disorders develop later in life.

Title: Fatigue in Parkinson's disease: concepts and clinical approach.

Citation: Psychogeriatrics: the official journal of the Japanese Psychogeriatric Society; Feb 2018

Author(s): Nassif, Daniel V; Pereira, João S

Abstract: Parkinson's disease (PD) is a progressive neurological disorder characterized by a large number of motor and non-motor features. Fatigue is one of the most common and most disabling symptoms among patients with PD, and it has a significant impact on their quality of life. Although fatigue has been recognized for a long time, its pathophysiology remains poorly understood, and there is no evidence to support any therapeutic approach in PD patients. Expert consensus on case definition and diagnostic criteria for PD-related fatigue have been recently published, and although they still need to be adequately validated, they provide a great step forward in the study of fatigue. The goal of this article is to provide relevant information for the identification and management of patients with fatigue.

Title: Motor vehicle accidents in Parkinson's disease: A questionnaire study.

Citation: Acta neurologica Scandinavica; Feb 2018; vol. 137 (no. 2); p. 218-223

Author(s): Ueno, T; Kon, T; Haga, R; Nishijima, H; Tomiyama, M

Objective: Few studies have investigated the risk factors for motor vehicle accidents (MVA) in individuals with Parkinson's disease (PD) in Japan.

Materials & Methods: We sent an anonymous questionnaire to 1417 patients with PD who had received medical care certificates for Intractable Diseases during the 2014 fiscal year from the Aomori Prefectural Government in Japan. Data from patients with PD who previously or currently held a driving license at the time of the survey were analyzed.

Results: Complete datasets were obtained from 384 patients with PD who were either past or present driving license holders. Fifty-seven patients had caused at least one MVA in the last 5 years before the survey. Logistic regression analyses revealed that ergot-dopamine agonist (DA) use and excessive daytime sleepiness (Epworth Sleepiness Scale score ≥ 10) were the best predictors of MVAs. Patients having caused non-sleep-related MVAs had significantly longer disease durations, more frequent ergot-DA use, and higher cognition and communication subscores on the Parkinson's Disease Questionnaire-39 than those without non-sleep-related MVAs ($P < .05$). The Epworth Sleepiness Scale scores of PD patients with sleep-related MVAs were significantly higher than those of patients without sleep-related MVAs ($P < .01$).

Conclusions: Excessive daytime sleepiness and ergot-DA use may be important predictive risk factors for MVAs in PD. Daytime sleepiness appears to be related to sleep-related MVAs in PD, whereas disease progression and ergot-DA use may contribute to non-sleep-related MVAs.

Title: Wearable sensors for clinical applications in epilepsy, Parkinson's disease, and stroke: a mixed-methods systematic review.

Citation: Journal of neurology; Feb 2018

Author(s): Johansson, Dongni; Malmgren, Kristina; Alt Murphy, Margit

Objectives: Wearable technology is increasingly used to monitor neurological disorders. The purpose of this systematic review was to synthesize knowledge from quantitative and qualitative clinical researches using wearable sensors in epilepsy, Parkinson's disease (PD), and stroke.

Methods: A systematic literature search was conducted in PubMed and Scopus spanning from 1995 to January 2017. A synthesis of the main findings, reported adherence to wearables and missing data from quantitative studies, is provided. Clinimetric properties of measures derived from wearables in laboratory, free activities in hospital, and free-living environment were also evaluated. Qualitative thematic synthesis was conducted to explore user experiences and acceptance of wearables.

Results: In total, 56 studies (50 reporting quantitative and 6 reporting qualitative data) were included for data extraction and synthesis. Among studies reporting quantitative data, 5 were in epilepsy, 21 PD, and 24 studies in stroke. In epilepsy, wearables are used to detect and differentiate seizures in hospital settings. In PD, the focus is on quantification of cardinal motor symptoms and medication-evoked adverse symptoms in both laboratory and free-living environment. In stroke upper extremity activity, walking and physical activity have been studied in laboratory and during free activities. Three analytic themes emerged from thematic synthesis of studies reporting qualitative data: acceptable integration in daily life, lack of confidence in technology, and the need to consider individualization.

Conclusions: Wearables may provide information of clinical features of interest in epilepsy, PD and stroke, but knowledge regarding the clinical utility for supporting clinical decision making remains to be established.

Title: Stepping reaction time and gait adaptability are significantly impaired in people with Parkinson's disease: Implications for fall risk.

Citation: Parkinsonism & related disorders; Feb 2018; vol. 47; p. 32-38

Author(s): Caetano, Maria Joana D; Lord, Stephen R; Allen, Natalie E; Brodie, Matthew

Background: Decline in the ability to take effective steps and to adapt gait, particularly under challenging conditions, may be important reasons why people with Parkinson's disease (PD) have an increased risk of falling. This study aimed to determine the extent of stepping and gait adaptability impairments in PD individuals as well as their associations with PD symptoms, cognitive function and previous falls.

Methods: Thirty-three older people with PD and 33 controls were assessed in choice stepping reaction time, Stroop stepping and gait adaptability tests; measurements identified as fall risk factors in older adults.

Results: People with PD had similar mean choice stepping reaction times to healthy controls, but had significantly greater intra-individual variability. In the Stroop stepping test, the PD participants were more likely to make an error (48 vs 18%), took 715 ms longer to react (2312 vs 1517 ms) and had significantly greater response variability (536 vs 329 ms) than the healthy controls. People with PD also had more difficulties adapting their gait in response to targets (poorer stepping accuracy) and obstacles (increased number of steps)

appearing at short notice on a walkway. Within the PD group, higher disease severity, reduced cognition and previous falls were associated with poorer stepping and gait adaptability performances.

Conclusions: People with PD have reduced ability to adapt gait to unexpected targets and obstacles and exhibit poorer stepping responses, particularly in a test condition involving conflict resolution. Such impaired stepping responses in Parkinson's disease are associated with disease severity, cognitive impairment and fall

Title: Acute effects of aerobic exercise on cognitive function in individuals with Parkinson's disease.

Citation: Neuroscience letters; Feb 2018

Author(s): Silveira, Carolina R A; Roy, Eric A; Almeida, Quincy J

Objective: Deficits in executive functions are highly prevalent in Parkinson's disease (PD). Although chronic physical exercise has been shown to improve executive functions in PD, evidence of acute exercise effects is limited. This study aimed to evaluate the effects of an acute bout of exercise on cognitive processes underlying executive functions in PD.

Methods: Twenty individuals with PD were assessed in both a Control and an Exercise conditions. In each condition, individuals started performing a simple and a choice reaction time (RT) task. Subsequently, participants were asked to sit on a cycle ergometer (Control) or cycle (Exercise) for 20 minutes in counterbalanced order. Participants were asked to repeat both reaction time tasks after 15-minute rest period in both conditions.

Results: While no differences were found in simple RT, participants showed faster choice RT post Exercise as well as Control conditions ($p = 0.012$). Participants had slower choice RT for target stimulus compared to non-target stimuli irrespective of time or experimental condition ($p < 0.001$). There was no change in accuracy following experimental conditions.

Conclusions: Results suggest that individuals with PD may not respond behaviourally to a single bout of exercise. The lack of selective effects of exercise on cognition suggests that practice effects may have influenced previous research. Future studies should assess whether neurophysiological changes might occur after an acute bout of exercise in PD.

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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