

Parkinson's Disease

Current Awareness

Bulletin

January 2016

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**Jason Ovens
Head of Library & Knowledge Services**

Title: Effectiveness of resistance training on muscle strength and physical function in people with Parkinson's disease: a systematic review and meta-analysis.

Citation: Clinical rehabilitation, Jan 2016, vol. 30, no. 1, p. 11-23 (January 2016)

Author(s): Chung, Chloe Lau Ha, Thilarajah, Shamala, Tan, Dawn

Abstract: To systematically review the evidence investigating the effectiveness of resistance training on strength and physical function in people with Parkinson's disease. Seven electronic databases (COCHRANE, CINAHL, Medline ISI, Psycinfo, Scopus, Web of Science ISI and Embase) were systematically searched for full-text articles published in English between 1946 and November 2014 using relevant search terms. Only randomized controlled trials investigating the effects of resistance training on muscle strength and physical function in people with Parkinson's disease were considered. The PEDro scale was used to assess study quality. Studies with similar outcomes were pooled by calculating standardized mean differences (SMD) using fixed or random effects model, depending on study heterogeneity. Seven studies, comprising of 401 participants with early to advanced disease (Hoehn & Yahr stage 1 to 4), were included. The median quality score was 6/10. The meta-analyses demonstrated significant SMD in favour of resistance training compared to non-resistance training or no intervention controls for muscle strength (0.61; 95% CI, 0.35 to 0.87; $P < 0.001$), balance (0.36; 95% CI, 0.08 to 0.64; $P = 0.01$) and parkinsonian motor symptoms (0.48; 95% CI, 0.21 to 0.75; $P < 0.001$) but not for gait, balance confidence and quality of life. This review demonstrates that moderate intensity progressive resistance training, 2-3 times per week over 8-10 weeks can result in significant strength, balance and motor symptoms gains in people with early to moderate Parkinson's disease. © The Author(s) 2015.

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Title: What is the evidence to support home environmental adaptation in Parkinson's disease? A call for multidisciplinary interventions

Citation: Parkinsonism and Related Disorders, October 2015, vol./is. 21/10(1127-1132), 1353-8020;1873-5126 (01 Oct 2015)

Author(s): Bhidayasiri R., Jitkriksadakul O., Boonrod N., Sringean J., Calne S.M., Hattori N., Hayashi A.

Abstract: "Home" is where one has a sense of belonging and feels secure, but it can also be a risky place for people with Parkinson's disease (PD). PD patients need assistance making adjustments to their physical environment to maintain appropriate care and provide a safe environment. This relationship is called the "person-environmental fit" (P-E fit). While most PD patients remain in their own homes, little is known about the specific challenges that PD patients and their caregivers encounter in the routine activities of daily living. The aim of our study was to identify the existing evidence on the issue of housing environmental adaptation in PD by performing a systematic review with a proposal of development strategies to integrate a multidisciplinary team into a home environmental research. MEDLINE, and life science journals were searched by querying appropriate key words, but revealed very few publications in this area. However, early evidence suggested that PD patients do not enjoy an adequate P-E fit in their own homes and face more functional limitations compared to matched controls. We concluded that we need to develop research-based evaluation strategies that can provide us with a theoretical and conceptual basis as well as tools for analysis of the P-E fit for PD patients and caregivers. We recommend that individual members of the multidisciplinary team including patients, caregivers, physicians, rehabilitation specialists, and social workers use a team approach to identify the key indicators and solutions for the development of PD-specific solutions for improving the P-E fit.

Title: Parkinson's disease and gastrointestinal non motor symptoms: Diagnostic and therapeutic options - A practise guide

Citation: Journal of Parkinson's Disease, September 2015, vol./is. 5/3(647-658), 1877-7171;1877-718X (14 Sep 2015)

Author(s): Klingelhoefer L., Reichmann H.

Abstract: Gastrointestinal (GI) disturbances in Parkinson's disease (PD) are varied, involve the upper and lower GI tract and are evident in all stages of the disease. Recognition and re-evaluation of these non motor symptoms (NMS) due to the course of PD is important. They have a major impact on the efficacy of oral anti-parkinsonian medication and health related quality of life. Treatment needs to be tailored to the specific patient case with evaluation of PD stage, the specific GI NMS and comorbidities. This article provides an overview of the pharmacological and non-pharmacological therapeutic options for GI NMS in PD.

Title: Effects of Group, Individual, and Home Exercise in Persons With Parkinson Disease: A Randomized Clinical Trial.

Citation: Journal of neurologic physical therapy : JNPT, Oct 2015, vol. 39, no. 4, p. 204-212 (October 2015)

Author(s): King, Laurie A, Wilhelm, Jennifer, Chen, Yiyi, Blehm, Ron, Nutt, John, Chen, Zunqiu, Serdar, Andrea, Horak, Fay B

Abstract: Comparative studies of exercise interventions for people with Parkinson disease (PD) rarely considered how one should deliver the intervention. The objective of this study was to compare the success of exercise when administered by (1) home exercise program, (2) individualized physical therapy, or (3) a group class. We examined if common comorbidities associated with PD impacted success of each intervention. Fifty-eight people (age = 63.9 ± 8 years) with PD participated. People were randomized into (1) home exercise program, (2) individual physical therapy, or (3) group class intervention. All arms were standardized and based on the Agility Boot Camp exercise program for PD, 3 times per week for 4 weeks. The primary outcome measure was the 7-item Physical Performance Test. Other measures of balance, gait, mobility, quality of life, balance confidence, depressions, apathy, self-efficacy and UPDRS-Motor, and activity of daily living scores were included. Only the individual group significantly improved in the Physical Performance Test. The individual exercise showed the most improvements in functional and balance measures, whereas the group class showed the most improvements in gait. The home exercise program improved the least across all outcomes. Several factors effected success, particularly for the home group. An unsupervised, home exercise program is the least effective way to deliver exercise to people with PD, and individual and group exercises have differing benefits. Furthermore, people with PD who also have other comorbidities did better in a program directly supervised by a physical therapist. Video Abstract available for additional insights from the authors (see Video, Supplemental Digital Content 1, <http://links.lww.com/JNPT/A112>).

Title: Relationship between acoustic measures and speech naturalness ratings in Parkinson's disease: A within-speaker approach.

Citation: Clinical linguistics & phonetics, Dec 2015, vol. 29, no. 12, p. 938-954 (December 2015)

Author(s): Klopfenstein, Marie

Abstract: This study investigated the acoustic basis of across-utterance, within-speaker variation in speech naturalness for four speakers with dysarthria secondary to Parkinson's disease (PD). Speakers read sentences and produced spontaneous speech. Acoustic measures of fundamental

frequency, phrase-final syllable lengthening, intensity and speech rate were obtained. A group of listeners judged speech naturalness using a nine-point Likert scale. Relationships between judgements of speech naturalness and acoustic measures were determined for individual speakers with PD. Relationships among acoustic measures also were quantified. Despite variability between speakers, measures of mean F0, intensity range, articulation rate, average syllable duration, duration of final syllables, vocalic nucleus length of final unstressed syllables and pitch accent of final syllables emerged as possible acoustic variables contributing to within-speaker variations in speech naturalness. Results suggest that acoustic measures correlate with speech naturalness, but in dysarthric speech they depend on the speaker due to the within-speaker variation in speech impairment.

Title: Cognitive motor intervention for gait and balance in Parkinson's disease: systematic review and meta-analysis.

Citation: Clinical rehabilitation, Feb 2016, vol. 30, no. 2, p. 134-144 (February 2016)

Author(s): Wang, Xue-Qiang, Pi, Yan-Ling, Chen, Bing-Lin, Wang, Ru, Li, Xin, Chen, Pei-Jie

Abstract: We performed a systematic review and meta-analysis to assess the effect of cognitive motor intervention (CMI) on gait and balance in Parkinson's disease. PubMed, Embase, Cochrane Library, CINAHL, Web of Science, PEDro, and China Biology Medicine disc. We included randomized controlled trials (RCTs) and non RCTs. Two reviewers independently evaluated articles for eligibility and quality and serially abstracted data. A standardized mean difference \pm standard error and 95% confidence interval (CI) was calculated for each study using Hedge's g to quantify the treatment effect. Nine trials with 181 subjects, four randomized controlled trials, and five single group intervention studies were included. The pooling revealed that cognitive motor intervention can improve gait speed (Hedge's g = 0.643 ± 0.191 ; 95% CI: 0.269 to 1.017, P = 0.001), stride time (Hedge's g = -0.536 ± 0.167 ; 95% CI: -0.862 to -0.209, P = 0.001), Berg Balance Scale (Hedge's g = 0.783 ± 0.289 ; 95% CI: 0.218 to 1.349, P = 0.007), Unipedal Stance Test (Hedge's g = 0.440 ± 0.189 ; 95% CI: 0.07 to 0.81, P = 0.02). The systematic review demonstrates that cognitive motor intervention is effective for gait and balance in Parkinson's disease. However, the paper is limited by the quality of the included trials. © The Author(s) 2015.

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Title: Estimating the direct and indirect costs associated with Parkinsons disease

Citation: Expert Review of Pharmacoeconomics and Outcomes Research, November 2015, vol./is. 15/6(889-911), 1473-7167;1744-8379 (01 Nov 2015)

Author(s): Rodriguez-Blazquez C., Forjaz M.J., Lizan L., Paz S., Martinez-Martin P.

Abstract: Parkinsons disease (PD) is a progressive, neurodegenerative disorder whose symptoms and manifestations greatly deteriorate the health, functional status and quality of life of patients, has severe consequences on their families and caregivers and supposes a challenge for the healthcare system and society. The aim of this paper is to comprehensively and descriptively review studies on the economic impact of the disease and interventions, analyzing major contributing factors to direct and indirect costs in PD. Cost-of-illness studies have shown that costs of PD are high, mainly due to drug, hospitalization and productivity loss, and tend to increase as the disease progresses. Studies on PD treatment have suggested that therapies for advanced PD (levodopa/carbidopa intestinal gel and apomorphine) and surgical procedures are cost-effective and cost saving, despite their high expenditures; however, further research such as on the

economic impact of non-motor manifestations or on the cost-effectiveness of non-medical interventions is still needed.

Title: Rehabilitation for Parkinson's disease: Current outlook and future challenges

Citation: Parkinsonism and Related Disorders, January 2016, vol./is. 22/(S60-S64), 1353-8020;1873-5126 (January 2016)

Author(s): Abbruzzese G., Marchese R., Avanzino L., Pelosin E.

Abstract: Rehabilitation is considered as an adjuvant to pharmacological and surgical treatments for Parkinson's disease (PD) to maximize functional ability and minimize secondary complications. Originally, approaches were based on empirical experience, but growing evidence suggests that exercise-dependent plasticity constitutes the main mechanism underlying the effects of physiotherapy. Exercise increases synaptic strength and influences neurotransmission, thus potentiating functional circuitry in PD. In addition, exercise is a pivotal element of motor learning. PD patients retain a sufficient capacity of motor learning, though learning rates and performance are reduced in comparison to normal controls. Recent meta-analyses demonstrated that rehabilitation could induce short-lasting, but clinically important benefits, particularly for gait and balance. However, the interventions are largely heterogeneous (stretching, muscle strengthening, balance, postural exercises, occupational therapy, cueing, treadmill training), and there is still no consensus about the optimal approach. Innovative techniques have been recently proposed: virtual reality and exergaming, motor imagery and action observation, robot-assisted physiotherapy and non-conventional therapies (e.g.: dance, martial arts). The rehabilitative program for PD should be "goal-based" (targeted to practicing and learning specific activities in the core areas), but a number of practice variables (intensity, specificity, complexity) need to be identified and the program should be tailored to the individual patients' characteristics.

Title: Parkinson's disease and dysphagia: optimising care.

Citation: Nursing & Residential Care, 2016, vol./is. 18/1(10-14), 14659301

Full Text:

Available from *EBSCOhost* in [Nursing & residential care : the monthly journal for care assistants, nurses and managers working in health and social care](#)

Title: Does attentional focus during balance training in people with Parkinson's disease affect outcome? A randomised controlled clinical trial.

Citation: Clinical rehabilitation, Jan 2016, vol. 30, no. 1, p. 53-63 (January 2016)

Author(s): Landers, Merrill R, Hatlevig, Rebecca M, Davis, Alyssa D, Richards, Amanda R, Rosenlof, Leslee E

Abstract: To compare the effects of attentional focus to augment balance outcomes in individuals with Parkinson's disease. Randomised controlled clinical trial. University gait and balance research laboratory. Forty-nine individuals with idiopathic Parkinson's disease. Participants were randomly assigned into one of four groups (three balance intervention groups and one control). The three intervention groups all received the same 4-week balance training program augmented with either external, internal, or no focus instructions. The control group did not receive any balance training. Outcomes were measured at baseline, post intervention, 2-weeks post intervention, and 8-weeks post intervention and included: Sensory Organization Test, Berg Balance Scale, Self-Selected Gait Velocity, Dynamic Gait Index, Activities-Specific Balance Confidence Scale, and obstacle course

completion time. There were no differences among the groups in trajectory over the course of the trial for all outcomes ($p \geq .135$). All groups improved from baseline to post intervention and from baseline to 2-weeks post intervention for all outcomes ($p \leq .003$), except Self-Selected Gait Velocity, which did not change over the course of the trial ($P = .121$). Attentional focus instructions to augment a 4-week balance training program did not result in any change over and above a control group in measures of gait and balance in individuals with Parkinson's disease. Additionally, while all four groups improved, there was no difference among the groups, including the control, suggesting that the 4-week balance training program in this trial was not effective. © The Author(s) 2015.

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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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