Peer coaching via mHealth to improve physical activity in older Latinx adults with Parkinson disease

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Introduction
Parkinson’s legacy to the field of neurology (A) The frontispiece to his essay on the Shaking Palsy, written in 1817. (B) An individual with Parkinson’s disease from William Gower’s work Manual of the Diseases of the Nervous System written in
Search query: exercise and parkinson’s disease

Count

![Graph showing the increase in search count over time.](image-url)
Exercise-Induced Neuroprotection and Recovery of Motor Function in Animal Models of Parkinson’s Disease

Ewelina Palasz, Wiktor Niewiadomski, Anna Gasiorowska, Adrianna Wysocka, Anna Stepniwska, and Grazyna Niewiadomska

Review

The Universal Prescription for Parkinson’s Disease: Exercise

Jay L. Alberts and Anson B. Rosenfeld

Cleveland Clinic, Department of Biomedical Engineering, Cleveland, OH, USA
Cleveland Clinic, Center for Neurological Restoration, Cleveland, OH, USA

Exercise-enhanced Neuroplasticity Targeting Motor and Cognitive Circuity in Parkinson’s Disease


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The Benefits of Exercise in Parkinson Disease

Liana S. Rosenthal, MD and E. Ray Dorsey, MD, MBA
Parkinson Disease and Movement Disorder Center, Department of Neurology, The Johns Hopkins University School of Medicine, Baltimore, Maryland
Background

Research Report

Levels and Patterns of Physical Activity and Sedentary Behavior in Elderly People With Mild to Moderate Parkinson Disease

Martin Benka Wallén, Erika Franzén, Håkan Nero, Maria Hägglund

Conclusions. Physical activity levels were generally low, in terms of both total volume and intensity, with only minor variations over the course of a day or between days. These results emphasize the need to develop strategies to increase PA and reduce time spent in sedentary behaviors in elderly people with mild to moderate PD.
Theories of Motivated Behavior

Social Cognitive Theory

Deci & Ryan, 2000

Adapted from Bandura, 2004
Self-Determination Theory

- **Autonomy**: The feeling one has choice and willingly endorsing one's behavior.
- **Competence**: The experience of mastery and being effective in one's activity.
- **Relatedness**: The need to feel connected and belongingness with others.

**Motivation**
Current State of the Evidence
Factors Associated With Exercise Behavior in People With Parkinson Disease

Terry Ellis, James T. Cavanaugh, Gammon M. Earhart, Matthew P. Ford, K. Bo Foreman, Lisa Freedman, Jennifer K. Boudreau, Leland E. Dibble

Conclusions: Self-efficacy, rather than disability, appears to be strongly associated with whether physically, community-dwelling people with PD exercise regularly. The results of this study suggest that physical therapists should include strategies to increase exercise self-efficacy when designing patient intervention programs for patients with PD.
Comparative Effectiveness of mHealth-Supported Exercise Compared With Exercise Alone for People With Parkinson Disease: Randomized Controlled Pilot Study
Terry D. Ellis, James T. Cavanaugh, Tamara DeAngelis, Kathryn Hendron, Cathi A. Thomas, Marie Saint-Hilaire, Karol Pencina, Nancy K. Latham

Figure 1.
Wellpepper exercise application. Courtesy of Wellpepper Inc.

Ellis et al., 2018
Original Paper

Peer Coaching Through mHealth Targeting Physical Activity in People With Parkinson Disease: Feasibility Study

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33% increase in steps/day
5,354 steps/day
7,115 steps/day

42% increase in active minutes
199 minutes/week
282 minutes/week
Incidence of Parkinson's Disease: Variation by Age, Gender, and Race/Ethnicity

Stephen K. Van Den Eeden\textsuperscript{1}, Caroline M. Tanner\textsuperscript{2}, Allan L. Bernstein\textsuperscript{3}, Robin D. Fross\textsuperscript{4}, Amethyst Leimpe\textsuperscript{1}, Daniel A. Bloch\textsuperscript{5}, and Lorene M. Nelson\textsuperscript{6}

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\textsuperscript{5} Stanford University, Stanford, CA.

7.6, 12.2). The age- and gender-adjusted rate per 100,000 was highest among Hispanics (16.6, 95% CI: 12.0, 21.3), followed by non-Hispanic Whites (13.6, 95% CI: 11.5, 15.7), Asians (11.3, 95% CI: 7.2, 15.3), and Blacks (10.2, 95% CI: 6.4, 14.0). These data suggest that the incidence of Parkinson's disease varies by race/ethnicity.
Racial and Social Disparities in Health and Health Care Delivery among Patients with Parkinson’s Disease and Related Disorders in a Multiracial Clinical Setting

Lynda Nwabuobi\textsuperscript{1,2} \cdot Julia Agee\textsuperscript{1,3} \cdot Rebecca Gilbert\textsuperscript{4,5,6}

Hispanic Perspectives on Parkinson’s Disease Care and Research Participation

Lisa Damron\textsuperscript{a}, Irene Litvan\textsuperscript{a,*}, Ece Bayram\textsuperscript{a}, Sarah Berk\textsuperscript{b}, Bernadette Siddiqi\textsuperscript{b} and Holly Shill\textsuperscript{c}

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\textsuperscript{c}Barrow Neurological Institute, Phoenix, AZ, USA

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How are the exercise needs of People with PD who are Hispanic/Latinx unique?

Exercise knowledge & utilization

“I just kind of make exercising in the morning my job, instead of having to go to work I exercise in some way, shape, or form, whether it's going to the gym, or playing pickleball, or even doing a kickboxing class online at home in the morning.”

Family support for exercise

“...It is very sad when one's own family does not understand what one needs. You need support, you need help and I think we all have that problem with Parkinson's that our own relatives, the family does not, they do not believe that you are truly encountering something with your health, and they think you're doing these things to get attention”

“...my grandsons call me to make sure I’m not doing any yard work...that I’m not doing anything heavy”

“...(my kids) try to motivate me a lot. I don’t like to go out. I don’t want to slow them down.”
Major Gaps/Opportunities for Research
Virtual Peer Coaching in Hispanics with PD: Conceptual Model

**Intervention**
- Action Plan
  - Self-driven PA goals
- Educational videos
  - Activity tracker /feedback on goals
- 1:1 peer support meetings
- 1:1 peer support app
- Group peer support
- Family integration/support

**Mediators of Motivation for Physical Activity (Outcome measure)**
- Autonomy
  - (BREQ-2: intrinsic regulation)
- Competence
  - (Self-Efficacy for PA)
- Relatedness
  - (social support via PDQ39; Supportive Accountability Measure: Exercise Habits; Social Norms for Inactivity)

**Primary Outcome**
- Physical Activity
  - (Actigraph)
  - Steps/day
  - Steps/week
  - MVPA/day
  - MVPA/week

**Secondary Outcomes**
- Disease progression (UPDRS III)
- Functional mobility (TUG)
- Quality of Life (PDQ39)
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Participants & family members