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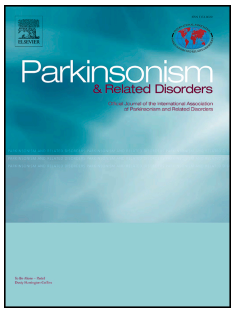

Sensor assisted self-management in Parkinson's disease: A feasibility study of ambulatory posture detection and feedback to treat stooped posture

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Sensor Assisted Self-management in Parkinson's Disease: a feasibility study of ambulatory posture detection and feedback to treat stooped posture.

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ABSTRACT

Introduction
A stooped posture is one of the characteristic motor symptoms of patients with Parkinson's disease, and has been linked to impairments in daily activities and quality of life. We aimed to test the efficacy, safety, practical utility and user-friendliness of a posture correction and vibrotactile trunk angle feedback device (the UpRight) in the home setting of patients with Parkinson's disease with a stooped posture. It was hypothesized that ambulatory use of the UpRight would be safe, feasible and result in a less stooped posture, i.e. a lower trunk angle during daily activities.
Methods
15 patients wore the UpRight during a baseline period of 1 week (no feedback), followed by an intervention period of 1 week (feedback).
Results
We found a significant decrease (average -5,4 degrees) in trunk angle from baseline period to intervention period without the occurrence of adverse events. In addition, patients found the device usable and beneficial to posture.
Conclusion
Use of the feedback and correction device has a positive effect on ambulatory trunk angles. The device appears to be both safe and useful for self-management of stooped posture in patients with Parkinson's Disease.

KEYWORDS

Parkinson's Disease, self-management, rehabilitation, stooped posture, sensor, ambulatory, cueing

INTRODUCTION

Stooped posture, an abnormally forward bent position of the trunk and head, is one of the characteristic and common motor symptoms of Parkinson's disease (PD) [1; 2], affecting up to 73% of patients[3]. Stooped posture is relatively resistant to dopamine replacement therapy (DRT) and deep brain stimulation (DBS) when compared to distal motor signs such as tremor or bradykinesia [4] and the underlying causes are under-investigated [5].