

**Assessment of postural instability in Parkinson's disease patients/ Hager Rasmi Ibrahim Al-Serougi, Supervisors: Prof. Dr. Moshera H. Darwish, Professor of Physical Therapy for Neuromuscular Disorder and its Surgery, faculty of Physical Therapy, Cairo University; Prof. Dr Mohamed S. El-Tamawy, Professor of Neurology and Head of the Neurology Department, Faculty of Medicine, Cairo University; Department of Physical Therapy for Neuromuscular Disorder and its Surgery, Master Thesis, 2010.**

## **ABSTRACT**

Postural instability is one of the hallmarks of Parkinson's disease (PD). **The purpose of this study** was to evaluate and analyze objectively the effect of different sensory and motor components on postural instability in PD and to determine the validity of using different scales as the Unified Parkinson's Disease Rating Scale (UPDRS), Berg Balance Scale (BBS) and the Push and Release test as valid methods to examine postural stability in PD patients. **Methods:** Twenty normal subjects (Gr. I) and twenty PD patients (Gr. II) were recruited for this study. Their age ranged from 40-60 years. Both groups (Gr. I and Gr. II) were examined using the Smart Balance Master® and the Balance Master® systems as methods of laboratory examination for postural stability. In addition group II was also examined clinically using the UPDRS, BBS, and the Push and Release test. **Results:** Parkinson's disease patients suffer from postural instability caused by deficits in their sensory (somatosensory, visual, and vestibular) systems, along with deficits in the musculoskeletal system. The central integrating mechanisms were also affected. The results also proved that computerized dynamic posturography is considered a more objective method than clinical scales in measurement of postural stability in PD patients. **Conclusion:** Parkinson's disease patients suffer from postural instability that is caused mainly by deficits in sensory and neuromuscular systems. The clinical scales used proved to be a less objective measure of postural stability in PD in comparison to computerized dynamic posturography.

**Key words:** Parkinson's disease, Balance, Postural instability. Computerized dynamic posturography. Unified Parkinson's disease Rating Scale (UPDRS). Berg Balance Scale (BBS). Push and Release test.