

# *Movement*



# Disorders

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## Gyrokinesis: A preventive rehabilitation program in Parkinson's disease

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**Objective:** To assess the effect of GK, a complex rehabilitation program on PD in an open label pilot study.

**Background:** The management of Parkinson's disease (PD) aims to improve quality of life by preventing and reducing the multiple clinical disabilities. The oscillatory human basal ganglia activity focuses on the effect of voluntary movement that similar to levodopa could change the synchronisation of neuronal discharge and improve the bradikinesia. Several reports showed an improving effect of music therapy and physical training on motor performance in PD. Gyro-Kinetics (GK) is a rehabilitation method that combines movement, touch and music to restore the physiological balanced state on physical, mental and emotional levels. It has been successfully used in several conditions: movement disorders, musculoskeletal, vascular, respiratory and digestive disorders, ADHD. The GK, including a passive session (a touch to create oscillations that propagate through the patient's body) and an active session (several pre-arranged sets of functional and structuring movements) prelies on music, from leisure to staccato rhythm, as an integral part of the therapy, to enhance the effect of the oscillatory and structured movements. These movements, adopted from the martial arts, from slow rotations to stretching exercises provide a complete workout to the musculo-skeletal system, helping patients to increase their kinesthetic awareness.

**Method:** Our pilot study lasted 3 months. It consisted of weekly session of GK in 11 PD patients (7 males) with mean age of  $63 \pm 9.9$  years, mean disease duration of  $3.9 \pm 2$  years and Hoehn and Yahr stage 1 to 3. Only 4 patients received levodopa as a previous therapy. No drug changes were made during the study period. The disease severity was assessed by a neurologist using UPDRS motor score, ADL score and CGIC. The assessment was done monthly, at baseline and final visit, pre and posttraining

session and once during the second month. The CGIC was done each session.

**Results:** All patients finished very satisfied this study. GK had a significant immediate postsession but also long standing improving effect on motor parameters: baseline UPDRS improved ( $P = 0.004$ ) in all patients after the training session and remained improved for 1 week, between 2 sessions ( $P = 0.13$ ). Remarkable immediate improvement was seen in: hypomimia ( $P = 0.002$ ), hand alternated rapid movements ( $P = 0.004$ ), speech tremor at rest, bradikinesia, gait and mood. The patients reported improvement of their breathing and constipation problems. The ADL improved from baseline to the last visit ( $P = 0.09$ ). Nine patients (81%) reported clear improvement on CGIC ( $P = 0.01$ ). 2 patients with advanced disease did not improve but remained stable.

**Conclusion:** GK seems to be effective on general motor and mood dysfunction in PD. It also can improve the respiratory and gastrointestinal disturbances and the patient awareness of his disease. The combined modalities of GK prove a higher effectivity and usefulness in the early stages of the disease in order to prevent the later complications. Further controlled studies are desirable.