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[Recenti Prog Med.](#) 2018 Feb;109(2):130-132. doi: 10.1701/2865.28908.

[Neurofeedback in Parkinson's disease: technologies in speech and language therapy]

[Article in Italian]

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Abstract

Neurofeedback (NF) is a form of biofeedback based on the self-modulation of brain activity; it aims to enhance mental and behavioral performances. The user modifies his brain functions thanks to EEG-mediated self-regulation and therapist's guidance. Recent advances in Brain-Computer Interfaces (BCI) have provided new evidence on the effectiveness of NF in reinforcing cognitive functions especially in children with ADHD. The applications on adults with cognitive deficits are still few. The study aims to investigate the possible effect of NF techniques on cognitive performance of patients with Parkinson's disease (PD) in terms of changes in scores at the neurocognitive assessment. Ten PD patients, staged according to Hoehn & Yahr scale and cognitively evaluated, were recruited.

Inclusion criteria: age 55-85, correct audio-visual functions, phase-on of dopaminergic therapy, Mild Cognitive Impairment. The rehabilitation program has been structured in 24 sessions. The NeuroSky MindWave headset and related software were used as BCI. At the end of the therapeutic path, the pre and post-treatment test's results were compared. Statistical analyzes were performed with SAS. Cognitive reevaluation showed a significant increase in scores and satisfaction questionnaires reported high values. The application of NF techniques in PD patients was promising. The increase in

satisfaction levels seems to be due to the perception of a direct control over one's cognitive performances.

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