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Effects of a highly intensive exercise-based intervention program (Sirocco) on prefrontal dorsolateral cortex activity (DLPFC) and gait performance in patients with Parkinson's Disease: a pilot study

I. Hoang¹, M. Cheminon², M. Ranchet¹, R. Derollepot¹, H. Devos³, S. Perrey⁴, J. Luauté^{2,5,6}, L. Paire-Ficout¹, T. Danaila⁷

1. TS2-LESCOT, Univ Gustave Eiffel, IFSTTAR, Univ Lyon, F-69675 Lyon, France 2. Hospices Civils de Lyon, Lyon, France 3. The University of Kansas Medical Center, Kansas City, KS, USA 4. Univ. Montpellier, IMT Mines Ales, Montpellier, France 5. Centre de Recherche en Neurosciences de Lyon, université Lyon-1, 6. Université Claude Bernard Lyon 1, Lyon, France 7. Hôpital Neurologique Pierre Wertheimer, Hospices Civils de Lyon, Université Claude Bernard Lyon I, Lyon, France

Introduction

- Physical exercise has shown to improve gait disorders in Parkinson's disease (PD)
- In Lyon (France), Sirocco is a novel, comprehensive, multidisciplinary rehabilitation program focused on intensive, high amplitude movements, and loudness of speech for 5 weeks with PD patients
- The aim was to assess the effects of the Sirocco program on DLPFC activity and gait during single task (ST) and dual-task (DT) walking in patients with PD

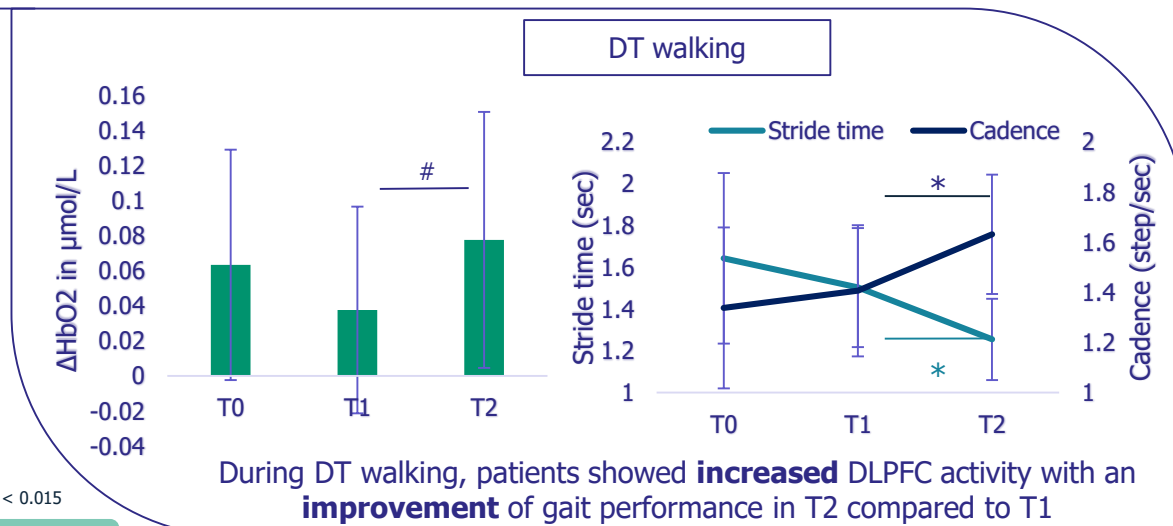
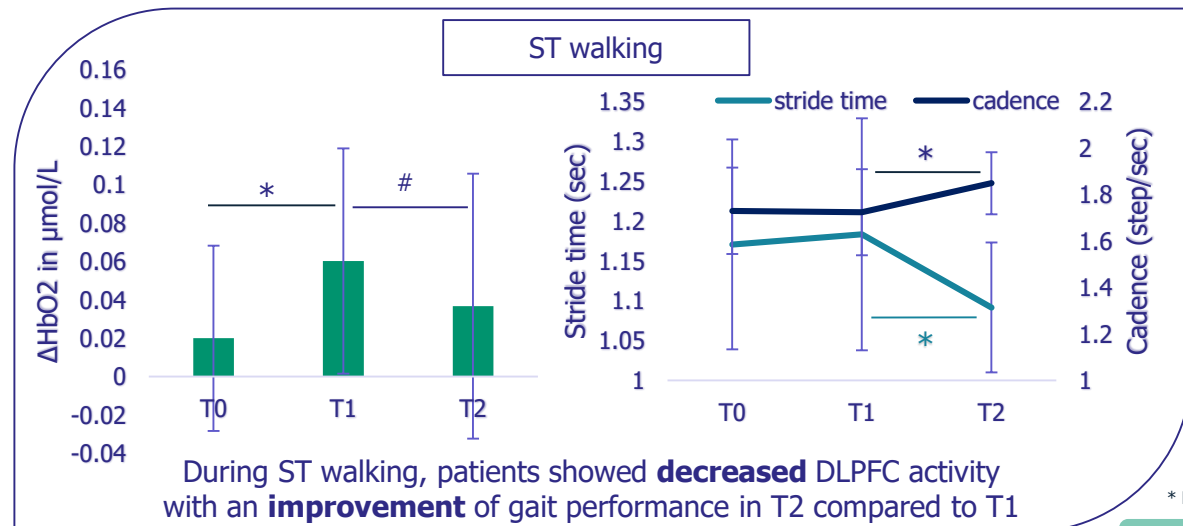
Methods

- 14 patients with PD (10M/4F)
- 3 measurements:
 - 5 weeks before the program (T0)
 - Before the program (T1)
 - After the program (T2)
- ST walking : usual walking
DT walking: walking while subtracting 7
- Changes in oxyhemoglobin concentration (ΔHbO_2)
- Mean stride time and cadence

Conclusion

- The program seemed to improve **automaticity** of walking during ST walking and **mobilization of neural cognitive resources** during DT walking
- Sirocco program seems to be a **promising** program to improve DLPFC activity and gait performance in PD
- Larger sample is needed to confirm these results

Results



* P < 0.05 ; # 0.05 < p < 0.015