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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

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## 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

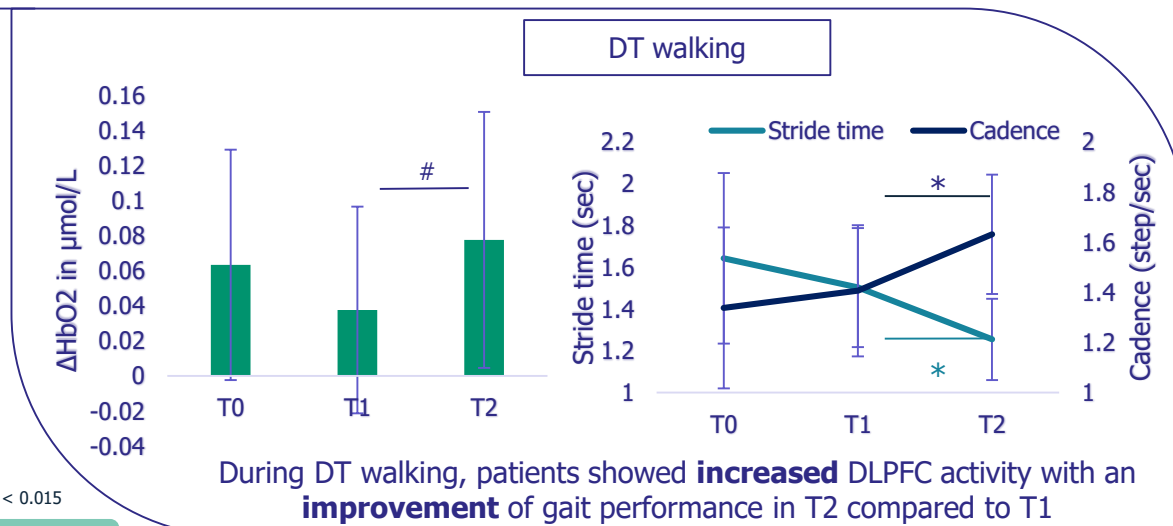
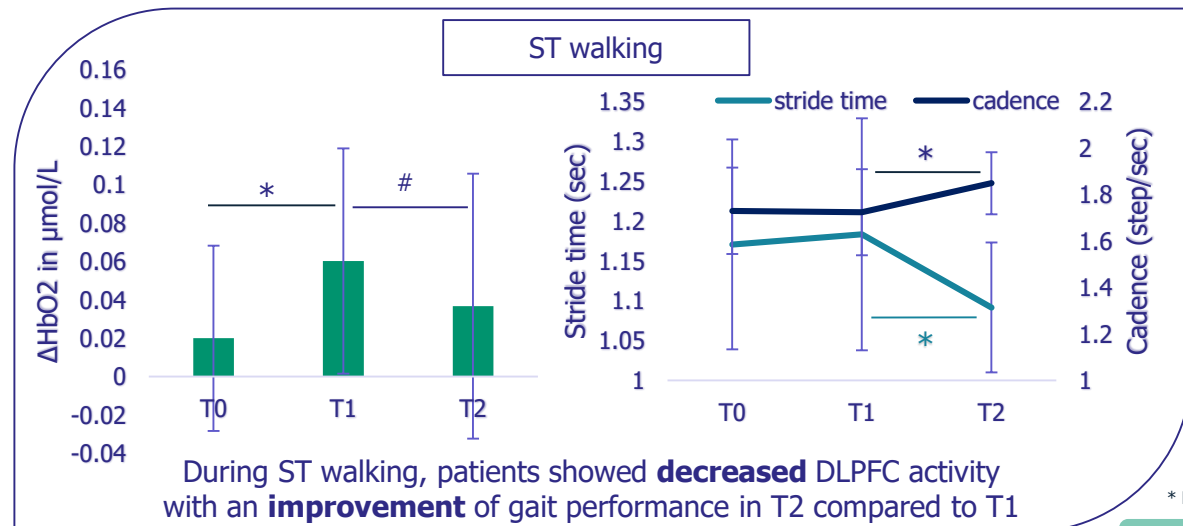
## Methods

- 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 ( $\Delta\text{HbO}_2$ )
- 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 &lt; 0.05 ; # 0.05 &lt; p &lt; 0.015