

ParkInCammino - Wearable sensor analysis trial in a Parkinsonian cohort selected for the Santiago Trail.

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Background: The impact of Physical activity on gait disturbances in Parkinson's disease is still theme of debate.

The application of mobile health technology enables the evaluation of several walk parameters of in different conditions, both in a context of performance and in the activities of daily life.

Objective: To investigate if the combination of physical activity and the challenge of a six-days long-distance trail could improve the gait parameters in Parkinson's disease and controls.

Methods: Twenty-two subjects including 11 patients and their caregivers were selected and underwent an extensive motor and non-motor assessment and MHT evaluation. Each patient started an intensive training for three months before taking part to a 6-days intensive trail (Santiago de Compostela Portuguese 85 Km Trial). Each subject underwent an evaluation at baseline, T1 (before Long-trail) and T2 (after the long trail).

Results: Patients showed a significant improvement in several motor and non- motor variables, including behavioral and quality of life measures. Patients but no controls showed an improvement of several gait parameters in supervised conditions, namely stance time, double limb support from baseline to T1 and to T2, whereas no changes in turning and postural instability were detected.

Conclusions: The study confirms the impact of physical activity on gait parameters in PD patients. Larger multicenter cohorts are needed in order to evaluate the long-term impact of trail experiences in PD patients.