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The impact of increased perceived fatigue on postural control during a standing task in people with Parkinson's disease

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Introduction: Fatigue is a disabling symptom affecting from 30% to 70% of people with Parkinson's disease (PD). Even if several studies associate fatigue with the other non-motor symptoms, there is a lack of studies investigating the impact of increased perceived fatigue on postural control in people with PD.

Objective: To investigate the impact of increased perceived fatigue on the upright postural control during standing task in people with PD.

Methods: 14 people with PD (Age: 68,4±6,3 years, H&Y: 2-3, Male=7/Female=7) were recruited for this cross-sectional study. All participants wore optical markers (LAMB protocol) and performed a continuous overground walking task into a gait analysis laboratory equipped with a motion tracking system (SMART-TD and P6000, BTS S.p.A., Milan, Italy) until they reached perceived exertion of 17 (at lower limbs or breath) rated with the Borg scale [1]. Participants performed a standing task with eyes open (StandEO) and eyes closed (StandEC) on a force platform before (T0) and after (T1) the walking trial. Data were processed to extract range of motion of the trunk on the sagittal (TrunkSagROM) frontal (TrunkFrontROM) and horizontal (TrunkHorROM) plane, mean velocity (CoPVel) and ellipse area (CoPArea) of center of pressure. To verify the impact of perceived fatigue on postural variables, comparison of medians between T0 and T1 were analyzed using Wilcoxon sign rank test.

Results: Participants showed increase (T1-T0) in TrunkSagROM (1,1±3,3 deg), TrunkHorROM (1,4±3,3 deg) and in CoPArea (366,6±1037,7 mm²) during StandEO. Significant increases were detected in TrunkHorROM (2,2±3,2 deg; p=0,013) and CoPArea (382,2±468,9 mm²; p=0,028) during StandEC.

Conclusions: These preliminary findings suggest that increased perceived fatigue can somewhat affect the upright postural control in people with PD. Future studies should compare data of people with PD reporting increased perceived fatigue with individuals who do not report fatigue in the same task.

References:

[1] Penko AL, Barkley JE, Koop MM, Alberts JL. Borg scale is valid for ratings of perceived exertion for individuals with Parkinson's disease. Int J Exerc Sci. 2017 Jan 1;10(1):76-86.