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**CAN A HIGHLY CHALLENGING BALANCE TRAINING PROGRAM FOR ELDERLY WITH PARKINSON'S DISEASE INCREASE HABITUAL PHYSICAL ACTIVITY LEVELS?**

Maria Hagströmer<sup>1</sup>, Håkan Nero<sup>1</sup>, David Conradsson<sup>1</sup>, Niklas Löfgren<sup>1</sup>, Agneta Ståhle<sup>1</sup>, Erika Franzén<sup>1</sup>.

<sup>1</sup>Department of Neurobiology, Care Sciences and Society, Karolinska Institutet, Stockholm, Sweden.

**Objective**

To evaluate if a new balance training regime, emphasizing specific components of balance related to symptoms specific for Parkinson's disease (PD), by using highly challenging, progressive and varying training conditions in comparison to care as usual, in elderly with mild to moderate PD can increase habitual physical activity levels.

**Methods**

100 elderly with PD (Hoehn & Yahr 2-3) were randomized either to the training group (n= 51) or to serve as controls (n=49), and of these 91 (90%) completed the study (Trial registration: NCT01417598). Group characteristics: training group, n=47 (28 males), 72.9 years, (SD 6.0) and control group, n=44 (23 males), 73.6 years, (SD 5.3). Main outcomes, assessed before and after this 10 week, 3 times per week group training program, were physical activity level (mean steps/day), balance performance (mini-BESTest), gait speed (with and without a cognitive dual-task), and fear of falling (Falls efficacy scale-International).

**Results**

Physical activity level showed a tendency to a significant interaction effect (p=0.052). Balance performance and gait velocity were improved in the training group in comparison to the controls (interaction effects p<0.001 and p=0.009, respectively). Gait speed when walking with a cognitive dual task increased in both groups (main effect, p<0.001). However, the training group improved their performance of the cognitive task during walking (p=0.007) while the control group remained unchanged. Both groups decreased their fear of falling (main effect p<0.001).

**Conclusions**

The results indicates that the balance training is effective to improve balance and gait in elderly with mild to moderate PD. Interestingly, the training group showed a tendency to a short term improvement in habitual physical activity level, which are of importance for overall health. The future long-term follow-up, where also an exercise prescription was given after the balance training period, will further explore these effects.