

### Methodology

Thirty-seven participants ( $74.3 \pm 5.2$  years) were randomly assigned into experimental group 1 [EG1] (psychomotor intervention); or experimental group 2 [EG2] (psychomotor intervention + WBV). DT performance (TUGcog) was assessed by the Timed Up and Go Test (s) performed simultaneously with the counting backward cognitive task.

### Results

Adherence rate was 86.3%. Wilcoxon test comparisons showed improvements from baseline to post-intervention on EG1 (time (s):  $10.1 \pm 2.7$  vs.  $9.0 \pm 2.7$ ,  $p = 0.001$ ; cognitive stops (n):  $0.9 \pm 1.0$  vs.  $0.2 \pm 0.4$ ,  $p = 0.012$ ; motor stops (n):  $0.3 \pm 0.5$  vs.  $0.0 \pm 0.0$ ,  $p = 0.025$ ), corresponding to an effect size (Cohen's  $d$ ) ranging from 0.41 (small) to 0.92 (medium) and on EG2 (time (s):  $9.9 \pm 2.5$  vs.  $8.5 \pm 1.8$ ,  $p = 0.010$ ; cognitive stops (n):  $1.1 \pm 0.7$  vs.  $0.4 \pm 0.5$ ,  $p = 0.004$ ), corresponding to a  $d$  ranging from 0.64 (medium) to 1.15 (medium). There were no significant differences between groups.

### Conclusion

These preliminary results suggested that the multimodal programs were feasible and effective in reducing the risk of falling by improving the determinant risk factor DT performance. Trial Registration: ClinicalTrials.gov Identifier: NCT03446352. Funding: This study was funded by ESACA Project (Grant ALT20-03-0145-FEDER-000007) and by FCT (SFRH/BD/147398/2019).

## Twelve-week multimodal programs can improve dual-task performance in risk factors for falls in community-dwelling older adults: a pilot study

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### Introduction

Performing a dual-task (DT), mainly while walking and performing another task simultaneously, is seen as determinants factors for falls and injuries in older adults. A psychomotor intervention relying on the prevention of sensorimotor and neurocognitive deterioration may prevent falls. The whole-body vibration (WBV) promotes the increase of agility, reducing the risk of falling. However, an intervention that combines both methods can lead to additional benefits, particularly as regards DT.

### Objectives

To evaluate the feasibility and the effect of two multimodal programs designed for community-dwelling older adults, fallers or at high risk of falling, on DT performance ability.