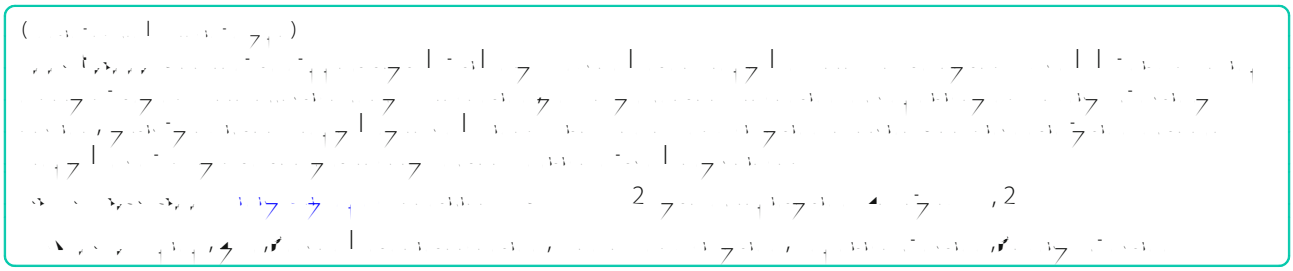

Background

follow-up period, and with a parallel three-arm design, was conducted between March 2018 and January 2019. Three groups of community-dwelling older adults from Évora (Portugal) were compared: experimental group 1 (EG1) was enrolled in a psychomotor intervention program, experimental group 2 (EG2) was enrolled in a combined exercise program (psychomotor intervention program + WBV), and the control group (CG) maintained their daily level of physical activity. This study followed the CONSORT guidelines for RCTs (http://www.consort-statement.org). The protocol was registered in ClinicalTrials.gov (NCT03446352), and no significant changes were made.

The participants were community-dwelling older adults and were recruited via pamphlets distributed in strategic locations and verbal communication (recreational and senior centers). The minimum sample size needed was estimated to be 15 participants/group, for a total of 45 participants, by the online G*Power software, with $\alpha = 0.05$ and power = 0.95. The sample size was increased to a minimum of 60 participants (20 in each group) to account for the expected dropout rate of 20%.

The inclusion criteria were: 1) male or female community-dwelling older adults who were aged ≥65 years; 2) had a moderate or high level of physical independence (≥ 18 points), as assessed by the 12-item Composite Physical Function (CPF) scale [19]; and 3) reported at least one fall in the previous 6 months or who were at high risk of falling (a score of ≤25 points on the Fullerton Advanced Balance Scale) [20]. The exclu-

conditions) and the number of errors in the CRT tasks

determine the type and circumstances of each fall (e.g. indoor/outdoor; accidental fall during a usual or an unusual task; consequent injuries).

#### *Secondary outcome measures*

The Borg Rating of Perceived Exertion (RPE) scale [26] was used to monitor exercise intensity, with scores ranging from 6 points (very, very light) to 20 points (very, very hard). The Caregiver Treatment Satisfaction (CTS) questionnaire [27] through a "face scale" was used to assess the participants' satisfaction level, with scores ranging from 1 point (extremely dissatisfied) to 5 points

(EG1Δ%: 11%, p = 0.024; EG2Δ%: 16.5%, p = 0.014) and the number of cognitive errors (EG2Δ%: 166.7%, p = 0.040). Concerning the CG, differences were observed

combining both methods has additional benefits. In addition, contrary to other researchers' findings [31, 32], the follow-up results in the present study showed that the benefits observed in RT, mobility, and DT performance by both intervention programs in community-dwelling older adults were reversed after the programs were discontinued.

The fact that the multimodal exercise programs in this study were supervised, instead of, for example, home-based, may have led to the programs being more effective [33]. Moreover, the adherence rate in the EGs in the present study (83.3%) was slightly higher than that in other studies on 24-week intervention programs (70%) [34] carried out in community-dwelling older adults. Concerning the Borg RPE scale results, the two EGs in the present study showed results similar to those in other studies on moderate-intensity intervention pro-

the neurocognitive losses associated with aging reported

were found that evaluated the effect of a psychomotor intervention program in the fall rate. The 16-week study implemented by Freiberger et al. [18], which included a psychomotor intervention focusing mainly on body awareness and coordination, showed improved physical function performance at the post-intervention, but no reduction in the number of falls at the 12-month follow-up. Although a previous meta-analysis [