**Additional file 3: Effects of lifestyle interventions on executive function and verbal fluency**

**Supplementary Figure 1: Effects of lifestyle interventions on executive function, stratified by gender**

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**Supplementary Table 1: Random effects meta-regression for executive function**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Coeff.** | **SE** | **95% CI** |
| Female sex | .01 | .15 | -.28; .30 |
| MCI at baseline (ref.: cognitively unimpaired) | .27 | .34 | -.41; .94 |
| Type of intervention (ref.: physical activity intervention) |  |  |  |
|  Nutritional intervention  | -.82 | .50 | -1.80; .16 |
|  Physical + cognitive intervention  | -.97 | .31 | -1.59; -.36 |
|  Cognitive intervention  | -.10 | .28 | -.65; .46 |
| Assessment instrument (ref.: TMT-B) |  |  |  |
|  Stroop test (auditory) | .49 | .40 | -.29; 1.28 |
|  Task switching paradigm | .14 | .30 | -.45; .73 |
|  Composite score | -1.12 | .48 | -2.06; -.19 |
|  Multitasking test | .33 | .41 | -.48; 1.13 |
|  Cattel’s matrices tests | -.14 | .26 | -.65; .36 |
|  WCST | -1.43 | .42 | -2.26; -.61 |
|  MoCA subscore executive | -.69 | .51 | -1.70; .32 |
| Number of sessions | .01 | .01 | -.01; .01 |
| Intervention duration (weeks) | .00 | .01 | -.01; .01 |
| Mean age of participants (years) | -.05 | .03 | -.12; .02 |

CI: confidence interval; Coeff.: coefficient; MCI: mild cognitive impairment; MoCA: Montreal Cognitive Assessment; SE: standard error; TMT-B: Trail Making Test B; WCST: Wisconsin Card Sorting Test

**Supplementary Figure 2:** **Effects of lifestyle interventions on verbal fluency, stratified by gender**

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**Supplementary Table 2: Random effects meta-regression for verbal fluency**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Coeff.** | **SE** | **95% CI** |
| Female sex | .03 | .21 | -.39; .45 |
| MCI at baseline (ref.: cognitively unimpaired) | -1.82 | 2.30 | -6.33; 2.70 |
| Type of intervention (ref.: physical activity intervention) |  |  |  |
|  Nutritional intervention  | .76 | 1.52 | -2.22; 3.73 |
|  Physical + cognitive intervention  | -1.80 | 2.22 | -6.15; 2.55 |
|  Cognitive intervention  | -.13 | .33 | -.79; .52 |
| Assessment instrument (ref.: CERAD verbal fluency test) |  |  |  |
|  Isaacs test | -.01 | 1.67 | -3.37; 3.19 |
|  COWAT | -.25 | 1.50 | -3.18; 2.68 |
|  Phonemic verbal fluency test1 | -.97 | 1.68 | -4.26; 2.33 |
|  Phonemic verbal fluency test2 | -.89 | 3.38 | -7.51; 5.74 |
| Number of sessions | .00 | .02 | -.05; .05 |
| Intervention duration (weeks) | .06 | .10 | -.14; .27 |
| Mean age of participants (years) | -.05 | .05 | -.14; .05 |

CI: confidence interval; Coeff.: coefficient; COWAT: Controlled Oral Word Association Test; MCI: mild cognitive impairment; SE: standard error; 1: verbal fluency test using one trial with a single letter (as applied in Antunes 2015b, Blumenthal et al. 1988); 2: verbal fluency test, using three trials with one letter each (as applied in Sipilä et al. 2021, van Uffelen et al. 2008)