**Online Supplementary Material**

Section 1: CONSORT 2010 checklist of information to include when reporting a randomised trial\*

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| --- | --- | --- | --- |
| Section/Topic | Item No | Checklist item | Reported on page No |
| Title and abstract | | | |
|  | 1a | Identification as a randomised trial in the title | 1 |
| 1b | Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts) | 1 |
| Introduction | | | |
| Background and objectives | 2a | Scientific background and explanation of rationale | 2 |
| 2b | Specific objectives or hypotheses | 3 |
| Methods | | | |
| Trial design | 3a | Description of trial design (such as parallel, factorial) including allocation ratio | 3 |
| 3b | Important changes to methods after trial commencement (such as eligibility criteria), with reasons | NA |
| Participants | 4a | Eligibility criteria for participants | 3 |
| 4b | Settings and locations where the data were collected | 3 |
| Interventions | 5 | The interventions for each group with sufficient details to allow replication, including how and when they were actually administered | 4-6 |
| Outcomes | 6a | Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed | 6-8 |
| 6b | Any changes to trial outcomes after the trial commenced, with reasons | 6-8 |
| Sample size | 7a | How sample size was determined | 3-4 |
| 7b | When applicable, explanation of any interim analyses and stopping guidelines | NA |
| Randomisation: |  |  |  |
| Sequence generation | 8a | Method used to generate the random allocation sequence | 4 |
| 8b | Type of randomisation; details of any restriction (such as blocking and block size) | NA |
| Allocation concealment mechanism | 9 | Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned | NA |
| Implementation | 10 | Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions | 4 |
| Blinding | 11a | If done, who was blinded after assignment to interventions (for example, participants, care providers, those assessing outcomes) and how | NA |
| 11b | If relevant, description of the similarity of interventions | 4-6 |
| Statistical methods | 12a | Statistical methods used to compare groups for primary and secondary outcomes | 8 |
| 12b | Methods for additional analyses, such as subgroup analyses and adjusted analyses | 8 |
| Results | | | |
| Participant flow (a diagram is strongly recommended) | 13a | For each group, the numbers of participants who were randomly assigned, received intended treatment, and were analysed for the primary outcome | 12 |
| 13b | For each group, losses and exclusions after randomisation, together with reasons | 12 |
| Recruitment | 14a | Dates defining the periods of recruitment and follow-up | 3-4 |
| 14b | Why the trial ended or was stopped | NA |
| Baseline data | 15 | A table showing baseline demographic and clinical characteristics for each group | 11 |
| Numbers analysed | 16 | For each group, number of participants (denominator) included in each analysis and whether the analysis was by original assigned groups | 13-14 |
| Outcomes and estimation | 17a | For each primary and secondary outcome, results for each group, and the estimated effect size and its precision (such as 95% confidence interval) | 13 |
| 17b | For binary outcomes, presentation of both absolute and relative effect sizes is recommended | 13 |
| Ancillary analyses | 18 | Results of any other analyses performed, including subgroup analyses and adjusted analyses, distinguishing pre-specified from exploratory | 14 |
| Harms | 19 | All important harms or unintended effects in each group (for specific guidance see CONSORT for harms) | 9-10 |
| Discussion | | | |
| Limitations | 20 | Trial limitations, addressing sources of potential bias, imprecision, and, if relevant, multiplicity of analyses | 17-18 |
| Generalisability | 21 | Generalisability (external validity, applicability) of the trial findings | 17-18 |
| Interpretation | 22 | Interpretation consistent with results, balancing benefits and harms, and considering other relevant evidence | 15-18 |
| Other information | | |  |
| Registration | 23 | Registration number and name of trial registry | 3 |
| Protocol | 24 | Where the full trial protocol can be accessed, if available | 3 |
| Funding | 25 | Sources of funding and other support (such as supply of drugs), role of funders | 23 |

**Section 2: Interventions**

The Cognitive-Intensive Training (CIT) group underwent training using Xbox, while the Physical-Intensive Training (PIT) group was trained using Wii Fit.

**Table 1. Description of the Xbox games**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Game Title** | **Motor demands** | **Cognitive demands** |
| **1** | Body and Brain Connection /**Math** /Meter Reader | Trunk movements | Attention, visual processing, problem-solving, working memory, planning movements, reaction time, perceptual-motor coordination, decision making |
| **2** | Body and Brain Connection/ **Math**/ Which is Bigger? | Shoulder movements | Attention, problem-solving, working memory, planning movements, reaction time, perceptual-motor coordination, decision making |
| **3** | Body and Brain Connection/**Memory**/ Strike a Pose | Upper and lower limb movements | Visual processing, working memory, free recall, divided attention, perceptual-motor coordination, decision making |
| **4** | Body and Brain Connection/**Memory**/Flip & Find | Shoulder movements | Visual processing, working memory, free recall, processing speed, divided attention, perceptual-motor coordination, decision making |
| **5** | Body and Brain Connection/ **Reflexes** / Pop Till You Drop | Shoulder movements | Attention, processing speed, visual processing, working memory, free recall, divided attention, perceptual-motor coordination, decision making |

**Table 2. Description of the Wii Fit games**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Game Title** | **Motor demands** | **Cognitive demands** |
| **1** | Bubble | Weight shifting to control the centre of mass | Maintain attention to visual input |
| **2** | Soccer heading | Weight shifting to displace the centre of mass | Visual processing, decision making |
| **3** | Table tilt | Weight shifting to control and displace the centre of mass | Attention, planning the movement |
| **4** | Ski Slalom | Weight shifting to displace the centre of mass | Planning the movement, attention to visual input |
| **5** | Penguin Slide | Weight shifting to displace rapidly the centre of mass | Planning the movement |

**Section 3: Participants characteristics at baseline (PP)**

| **Variables** | **Sub-category** | **Xbox group (*n* = 18)** | **Wii Fit group (*n* = 18)** | ***P*** |
| --- | --- | --- | --- | --- |
| Age in years, mean (SD) |  | 74.3 (5.7) | 72.8 (4.8) | 0.40 |
| Gender, *n* (%) | Male  Female | 5 (27.8)  13 (72.2) | 6 (33.3)  12 (66.7) | 0.72 |
| BMI (kg/m²), mean (SD) |  | 27.6 (5.2) | 26.3 (3.8) | 0.40 |
| Physically active, *n* (%) |  | 18 (100) | 17 (94) | 0.31 |
| Fall history, *n* (%) |  | 2 (11) | 1 (6) | 0.55 |
| Comorbidity, *n* (%) | Asthma  Diabetes  Head injury  Heart problems  Musculoskeletal problems  Vision problems  Hearing problems  High blood pressure  Multiple comorbidity | 1 (6)  1 (6)  1 (6)  2 (11)  5 (28)  1 (6)  5 (28)  7 (39)  4 (22) | 2 (11)  1 (6)  3 (17)  0 (0)  10 (55)  1 (6)  7 (39)  4 (22)  9 (50) | 0.55  0.99  0.29  0.15  0.06  0.99  0.48  0.28  0.08 |
| FES, median (IQR) |  | 8 (2) | 7 (1) | 0.39 |
| FRT, cm | Ankle  Hip | 15.6 (3.7)  22.7 (5.1) | 16.3 (3.9)  24.4 (6.4) | 0.62  0.38 |
| TUG, sec |  | 11.1 (2.3) | 9.8 (1.7) | 0.06 |
| HVLT |  | 27.2 (4.2) | 27.9 (3.1) | 0.56 |
| VST | RT (mean)  SD (mean) | 1707.6 (136.9)  440.8 (153) | 1635.4 (166.7)  354.6 (154.8) | 0.17  0.10 |
| CBT |  | 4.72 (1) | 5 (0.6) | 0.30 |
| ST | No of error  RT (mean) | 1.2 (1.4)  1455.5 (230.6) | 1.3 (1.4)  1378.6 (221.4) | 0.81  0.31 |

Note. BMI: Body Mass Index, FES: Fall Efficacy Scale, FRT: Functional Reach Test, TUG: Timed Up and Go Test; HVLT: Hopkins Verbal Learning Test, VST: Visual sensitivity Test, CBT: Corsi-Block-tapping Test, ST: Stroop Task, RT: reaction time, SD: standard deviation.