**Supplementary material**

**Supplementary Table 1. Search strategy for PubMed.**

|  |  |
| --- | --- |
| #1 | Exercise [Mesh] |
| #2 | Exercise[Title/Abstract] OR Exercises[Title/Abstract] OR Exercise, Physical[Title/Abstract] OR Exercises, Physical[Title/Abstract] OR Physical Exercise[Title/Abstract] OR Physical Exercises[Title/Abstract] OR Exercise, Aerobic[Title/Abstract] OR Aerobic Exercise[Title/Abstract] OR Aerobic Exercises[Title/Abstract] OR Exercises, Aerobic[Title/Abstract] OR Exercise, Isometric[Title/Abstract] OR Exercises, Isometric[Title/Abstract] OR Isometric Exercises[Title/Abstract] OR Isometric Exercise[Title/Abstract] OR Acute Exercise[Title/Abstract] OR Acute Exercises[Title/Abstract] OR Exercise, Acute[Title/Abstract] OR Exercises, Acute[Title/Abstract] OR Exercise Training[Title/Abstract] OR Exercise Trainings[Title/Abstract] OR Training, Exercise[Title/Abstract] OR Trainings, Exercise[Title/Abstract] OR Physical Activity[Title/Abstract] OR Activities, Physical[Title/Abstract] OR Activity, Physical[Title/Abstract] OR Physical Activities[Title/Abstract] OR Running[Title/Abstract] OR runnings[Title/Abstract] OR jogging[Title/Abstract] OR joggings[Title/Abstract] OR Swimming[Title/Abstract] OR Walking[Title/Abstract] OR Ambulation[Title/Abstract] OR Stair Climbing[Title/Abstract] OR Climbing, Stair[Title/Abstract] OR Stair Navigation[Title/Abstract] OR Navigation, Stair[Title/Abstract] OR Muscle Stretching Exercises[Title/Abstract] OR yoga[Title/Abstract] OR tai chi[Title/Abstract] OR Tai-ji[Title/Abstract] OR Tai Chi[Title/Abstract] OR Chi, Tai[Title/Abstract] OR Tai Ji Quan[Title/Abstract] OR Ji Quan, Tai[Title/Abstract] OR Quan, Tai Ji[Title/Abstract] OR Taiji[Title/Abstract] OR Taijiquan[Title/Abstract] OR T’ai Chi[Title/Abstract] OR Tai Chi Chuan[Title/Abstract] OR Muscle Stretching Exercises[Title/Abstract] OR Exercise, Muscle Stretching[Title/Abstract] OR Exercises, Muscle Stretching[Title/Abstract] |
| #3 | #1 OR #2 |
| #4 | Alzheimer Disease [Mesh] |
| #5 | Alzheimer Disease[Title/Abstract] OR Alzheimer Syndrome[Title/Abstract] OR Alzheimer-Type Dementia (ATD)[Title/Abstract] OR Alzheimer Type Dementia (ATD)[Title/Abstract] OR Dementia, Alzheimer-Type (ATD)[Title/Abstract] OR Alzheimer's Diseases[Title/Abstract] OR Alzheimer Diseases[Title/Abstract] OR Alzheimers Diseases[Title/Abstract] OR Alzheimer Dementia[Title/Abstract] OR Alzheimer Dementias[Title/Abstract] OR Dementia, Alzheimer[Title/Abstract] OR Alzheimer's Disease[Title/Abstract] OR Dementia, Senile[Title/Abstract] OR Senile Dementia[Title/Abstract] OR Dementia, Alzheimer Type[Title/Abstract] OR Alzheimer Type Dementia[Title/Abstract] OR Senile Dementia, Alzheimer Type[Title/Abstract] OR Alzheimer Type Senile Dementia[Title/Abstract] OR Primary Senile Degenerative Dementia[Title/Abstract] OR Alzheimer Sclerosis[Title/Abstract] OR Sclerosis, Alzheimer[Title/Abstract] OR Dementia, Primary Senile Degenerative[Title/Abstract] OR Dementia, Presenile[Title/Abstract] OR Presenile Dementia[Title/Abstract] OR Acute Confusional Senile Dementia[Title/Abstract] OR Senile Dementia, Acute Confusional[Title/Abstract] OR Alzheimer Disease, Early Onset[Title/Abstract] OR Early Onset Alzheimer Disease[Title/Abstract] OR Presenile Alzheimer Dementia[Title/Abstract] OR Alzheimer Disease, Late Onset[Title/Abstract] OR Late Onset Alzheimer Disease[Title/Abstract] OR Alzheimer's Disease, Focal Onset[Title/Abstract] OR Focal Onset Alzheimer's Disease[Title/Abstract] OR Familial Alzheimer Disease (FAD)[Title/Abstract] OR Alzheimer Disease, Familial (FAD)[Title/Abstract] OR Familial Alzheimer Diseases (FAD)[Title/Abstract] |
| #6 | #4 OR #5 |
| #7 | Cognition [Mesh] |
| #8 | Cognition[Title/Abstract] OR Cognitions[Title/Abstract] OR Cognitive Function[Title/Abstract] OR Cognition Functions[Title/Abstract] OR Function, Cognitive[Title/Abstract] OR Functions, Cognitive[Title/Abstract] |
| #9 | #7 OR #8 |
| #10 | #3 AND #6 AND #9 |

Graph 1st

**Supplementary Fig. 1. Subgroup analysis results of the effect of country on cognitive function in AD patients.**

Graph 2nd.

**Supplementary Fig. 2. Subgroup analysis results of the effect of intervention intensity on cognitive function in AD patients.**

Graph 3rd

**Supplementary Fig. 3. Subgroup analysis results of the effect of a single session duration on cognitive function in AD patients.**

Graph 4th

**Supplementary Fig. 4. Subgroup analysis results of the effect of intervention frequency on cognitive function in AD patients.**

Graph 5th

**Supplementary Fig. 5. Subgroup analysis results of the effect of total weekly intervention time on cognitive function in AD patients.**

Graph 6th

**Supplementary Fig. 6. Subgroup analysis results of the effect of total intervention duration on cognitive function in AD patients.**

**Supplementary Table 2. Bivariate meta-regression analyses of the effect of country on intervention intensity, single session duration, intervention frequency, total weekly intervention time, and total intervention duration.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Variables | | Coef. | Std. Err. | z | P > | z | | 95% CI |
| 1 | Country | 1.464 | 0.418 | 3.50 | <0.001 | (0.643, 2.285) |
| Intervention intensity | -0.297 | 0.438 | -0.68 | 0.498 | (-1.156, 0.561) |
| 2 | Country | 1.225 | 0.629 | 1.95 | 0.051 | (-0.007, 2.458) |
| Single session duration | -0.014 | 0.023 | -0.61 | 0.542 | (-0.060, 0.031) |
| 3 | Country | 1.314 | 0.684 | 1.92 | 0.055 | (-0.028, 2.656) |
| Intervention frequency | -0.091 | 0.478 | -0.19 | 0.849 | (-1.028, 0.846) |
| 4 | Country | 1.311 | 0.658 | 1.99 | 0.046 | (0.021, 2.601) |
| Total weekly intervention time | -0.009 | 0.038 | -0.26 | 0.795 | (-0.084, 0.064) |
| 5 | Country | 1.335 | 0.627 | 2.13 | 0.033 | (0.106, 2.565) |
| Total intervention duration | 0.481 | 0.627 | 0.77 | 0.443 | (-0.749, 1.711) |

Note. Coef: coefficient, Std. Err.: standard error, 95% CI: 95% Confidence Interval.

**Supplementary Table 3. Multivariate meta-regression analysis of intervention intensity, single session duration, intervention frequency, and total intervention duration.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variables | Coef. | Std. Err. | z | P > | z | | 95% CI |
| Intervention intensity | -2.044 | 0.531 | -3.85 | <0.001 | (-3.085, -1.003) |
| Single session duration | -0.064 | 0.021 | -3.06 | 0.002 | (-0.106, -0.023) |
| Intervention frequency | 2.060 | 0.476 | 4.32 | <0.001 | (1.126, 2.994) |
| Total intervention duration | 1.777 | 0.567 | 3.13 | 0.002 | (0.664, 2.890) |

**Supplementary Table 4. Results of Egger’s test.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Std\_EFF | Coef. | Std. Err. | t | P > | t | | 95% CI |
| Slope | 0.627 | 0.382 | 1.64 | 0.129 | (-0.213, 1.468) |
| Bias | 1.352 | 0.696 | 1.94 | 0.078 | (-0.180, 2.885) |

Note. Coef: coefficient, Std. Err.: standard error, t: t-test statistic, p: probability, 95% CI: 95% Confidence Interval.