**Supplementary Material 1. Search strategy for Medline**

| **Vision Related Terms** | **Physical Activity Terms** |
|---|---|
| **MeSH TERMS** | |
| Vision Disorders | Exercise |
| Visually Impaired Persons | Exercise therapy |
| Glaucoma | Sports |
| Retinal Diseases | Tai ji |
| Cataract | Yoga |
| | Dancing |
| | Postural Balance |
| | Posture |
| | Muscle Strength |
| | Gait |
| | Mobility Limitation |
| | Exercise movement techniques |
| | Walking |
| | Rehabilitation |
| | Dance therapy |
| | Occupational therapy |
| | Recreation therapy |
| **KEYWORD SEARCH TERMS** | |
| Vision*or visual*or eye*or sight adj3 (impair* or loss or disorder* or disease* or disabl*)) | Exercise |
| Blindness | Physical* adj3 activ* |
| | Danc* |

Vision related terms combined with “OR”.

Physical activity terms combined with “OR”.

Vision related and physical activity terms combined with “AND”.

## Supplementary 2 - PRISMA Checklist

# PRISMA 2009 Checklist[!]

| Section/topic | # | Checklist item | Reported on page # |
|---|---|---|---|
| **TITLE** | | | |
| Title | 1 | Identify the report as a systematic review, meta-analysis, or both. | 1 |
| **ABSTRACT** | | | |
| Structured summary | 2 | Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number. | 2 |
| **INTRODUCTION** | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. | 4-6 |
| Objectives | 4 | Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS). | 5-6 |
| **METHODS** | | | |
| Protocol and registration | 5 | Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number. | 7 |
| Eligibility criteria | 6 | Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale. | 7 |
| Information sources | 7 | Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched. | 8 |
| Search | 8 | Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated. | Supp 1 |
| Study selection | 9 | State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis). | 6-7 |
| Data collection process | 10 | Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators. | 8-9 |
| Data items | 11 | List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made. | 8-9 |
| Risk of bias in individual studies | 12 | Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis. | 9 |
| Summary measures | 13 | State the principal summary measures (e.g., risk ratio, difference in means). | 9 |
| Synthesis of results | 14 | Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., $I^2$) for each meta-analysis. | 9 |

# PRISMA 2009 Checklist!

| Section/topic | # | Checklist item | Reported on page # |
|---|---|---|---|
| Risk of bias across studies | 15 | Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies). | 9 |
| Additional analyses | 16 | Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified. | NA |
| **RESULTS** | | | |
| Study selection | 17 | Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram. | 10, Fig 1 |
| Study characteristics | 18 | For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations. | 10-15 |
| Risk of bias within studies | 19 | Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12). | 17-18 |
| Results of individual studies | 20 | For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot. | Fig 2 |
| Synthesis of results | 21 | Present results of each meta-analysis done, including confidence intervals and measures of consistency. | Fig 2 |
| Risk of bias across studies | 22 | Present results of any assessment of risk of bias across studies (see Item 15). | 18 |
| Additional analysis | 23 | Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]). | NA |
| **DISCUSSION** | | | |
| Summary of evidence | 24 | Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers). | 19-22 |
| Limitations | 25 | Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias). | 21-22 |
| Conclusions | 26 | Provide a general interpretation of the results in the context of other evidence, and implications for future research. | 22 |
| **FUNDING** | | | |
| Funding | 27 | Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review. | 23 |

*From:* Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit: **www.prisma-statement.org**.

# Supplementary 3 - AMSTAR 2 Checklist

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

**1. Did the research questions and inclusion criteria for the review include the components of PICO?**

For Yes:
- ☐ Population
- ☐ Intervention
- ☐ Comparator group
- ☐ Outcome

Optional (recommended)
- ☐ Timeframe for follow-up

- ☐ Yes
- ☐ No

**2. Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?**

For Partial Yes:
The authors state that they had a written protocol or guide that included ALL the following:
- ☐ review question(s)
- ☐ a search strategy
- ☐ inclusion/exclusion criteria
- ☐ a risk of bias assessment

For Yes:
As for partial yes, plus the protocol should be registered and should also have specified:
- ☐ a meta-analysis/synthesis plan, if appropriate, *and*
- ☐ a plan for investigating causes of heterogeneity
- ☐ justification for any deviations from the protocol

- ☐ Yes
- ☐ Partial Yes
- ☐ No

**3. Did the review authors explain their selection of the study designs for inclusion in the review?**

For Yes, the review should satisfy ONE of the following:
- ☐ *Explanation for* including only RCTs
- ☐ OR *Explanation for* including only NRSI
- ✓ ☐ OR *Explanation for* including both RCTs and NRSI

- ☐ Yes
- ☐ No

**4. Did the review authors use a comprehensive literature search strategy?**

For Partial Yes (all the following):
- ✓ ☐ searched at least 2 databases (relevant to research question)
- ✓ ☐ provided key word and/or search strategy
- ✓ ☐ justified publication restrictions (e.g. language)

For Yes, should also have (all the following):
- ✓ ☐ searched the reference lists / bibliographies of included studies
- ☐ searched trial/study registries
- ✓ ☐ included/consulted content experts in the field
- ☐ where relevant, searched for grey literature
- ✓ ☐ conducted search within 24 months of completion of the review

- ☐ Yes
- ☐ Partial Yes
- ☐ No

**5. Did the review authors perform study selection in duplicate?**

For Yes, either ONE of the following:
- ☐ at least two reviewers independently agreed on selection of eligible studies and achieved consensus on which studies to include
- ✓ ☐ OR two reviewers selected a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder selected by one reviewer.

- ☐ Yes
- ☐ No

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

**6. Did the review authors perform data extraction in duplicate?**

For Yes, either ONE of the following:
- ☐ at least two reviewers achieved consensus on which data to extract from included studies
- ☐ OR two reviewers extracted data from a sample of eligible studies and achieved good agreement (at least 80 percent), with the remainder extracted by one reviewer.

☐ Yes ☐ No

**7. Did the review authors provide a list of excluded studies and justify the exclusions?**

For Partial Yes:
- ☐ provided a list of all potentially relevant studies that were read in full-text form but excluded from the review

For Yes, must also have:
- ☐ Justified the exclusion from the review of each potentially relevant study

☐ Yes ☐ Partial Yes ☐ No

**8. Did the review authors describe the included studies in adequate detail?**

For Partial Yes (ALL the following):
- ☐ described populations
- ☐ described interventions
- ☐ described comparators
- ☐ described outcomes
- ☐ described research designs

For Yes, should also have ALL the following:
- ☐ described population in detail
- ☐ described intervention in detail (including doses where relevant)
- ☐ described comparator in detail (including doses where relevant)
- ☐ described study's setting
- ☐ timeframe for follow-up

☐ Yes ☐ Partial Yes ☐ No

**9. Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?**

**RCTs**

For Partial Yes, must have assessed RoB from
- ☐ unconcealed allocation, *and*
- ☐ lack of blinding of patients and assessors when assessing outcomes (unnecessary for objective outcomes such as all-cause mortality)

For Yes, must also have assessed RoB from:
- ☐ allocation sequence that was not truly random, *and*
- ☐ selection of the reported result from among multiple measurements or analyses of a specified outcome

☐ Yes ☐ Partial Yes ☐ No ☐ Includes only NRSI

**NRSI**

For Partial Yes, must have assessed RoB:
- ☐ from confounding, *and*
- ☐ from selection bias

For Yes, must also have assessed RoB:
- ☐ methods used to ascertain exposures and outcomes, *and*
- ☐ selection of the reported result from among multiple measurements or analyses of a specified outcome

☐ Yes ☐ Partial Yes ☐ No ☐ Includes only RCTs

**10. Did the review authors report on the sources of funding for the studies included in the review?**

For Yes
- ☐ Must have reported on the sources of funding for individual studies included in the review. Note: Reporting that the reviewers looked for this information but it was not reported by study authors also qualifies

☐ Yes ☐ No

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

**11. If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?**

**RCTs**

For Yes:

- ☐ The authors justified combining the data in a meta-analysis
- ☑ ☐ AND they used an appropriate weighted technique to combine study results and adjusted for heterogeneity if present.
- ☐ AND investigated the causes of any heterogeneity

☐ Yes
☐ No
☐ No meta-analysis conducted

**For NRSI**

For Yes:

- ☐ The authors justified combining the data in a meta-analysis
- ☐ AND they used an appropriate weighted technique to combine study results, adjusting for heterogeneity if present
- ☐ AND they statistically combined effect estimates from NRSI that were adjusted for confounding, rather than combining raw data, or justified combining raw data when adjusted effect estimates were not available
- ☐ AND they reported separate summary estimates for RCTs and NRSI separately when both were included in the review

☐ Yes
☐ No
☐ No meta-analysis conducted

**12. If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?**

For Yes:

- ☐ included only low risk of bias RCTs
- ☑ ☐ OR, if the pooled estimate was based on RCTs and/or NRSI at variable RoB, the authors performed analyses to investigate possible impact of RoB on summary estimates of effect.

☐ Yes
☐ No
☐ No meta-analysis conducted

**13. Did the review authors account for RoB in individual studies when interpreting/ discussing the results of the review?**

For Yes:

- ☐ included only low risk of bias RCTs
- ☑ ☐ OR, if RCTs with moderate or high RoB, or NRSI were included the review provided a discussion of the likely impact of RoB on the results

☐ Yes
☐ No

**14. Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?**

For Yes:

- ☐ There was no significant heterogeneity in the results
- ☑ ☐ OR if heterogeneity was present the authors performed an investigation of sources of any heterogeneity in the results and discussed the impact of this on the results of the review

☐ Yes
☐ No

**15. If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?**

For Yes:

- ☑ ☐ performed graphical or statistical tests for publication bias and discussed the likelihood and magnitude of impact of publication bias

☐ Yes
☐ No
☐ No meta-analysis conducted

AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both

| ✓ | **16. Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?** | ✓ |
|---|---|---|
| For Yes: | | |
| ☐ | The authors reported no competing interests OR | ☐ Yes |
| ☐ | The authors described their funding sources and how they managed potential conflicts of interest | ☐ No |

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## Supplementary Material 4. Characteristics of included intervention studies

| First author, year (setting) | Study Design | Participants | Intervention (Description and Dose) | Control | Outcomes | Results |
|---|---|---|---|---|---|---|
| Ackley-Holbrook, 2016 (USA) | Pre Post | Severe VI or blindness.<br>Recruited through advocacy organizations, online discussion groups and communities, word-of-mouth.<br>Aged ≥ 18yrs.<br>Mean age = 47.9 ± 11.5 yrs.<br>% Males = UNK<br>n = 21 | Walking program; 8 weeks, increasing daily step count by 1000 above baseline, progressively higher targets every 2 weeks | Baseline step count | Daily step count (by pedometer), resting heart rate, blood pressure, body mass, % body fat, waist circumference, lipids | Significant increase in steps per day; (baseline 4925 ± 2233 v post 8772 ± 2916, p<0.01). No significant differences in other measures. Reported improvements in cardiovascular endurance and productivity (93%), mood and mental health (73%), outlook on life, self confidence and functional mobility (67%). |
| Campbell, 2005 (NZ) | RCT | Visual acuity of 6/24 or worse.<br>Recruited via register for the blind, hospital outpatient clinics, private ophthalmology practice.<br>Living in community.<br>Aged ≥75.<br>Mean age = 83.6 ± 4.8 yrs<br>% Males = 32%<br>n = 391 | Four groups;<br>1) Otago exercise program (Muscle strengthening and balance retraining exercises that progress in difficulty) and walking plan; 5 home visits from a physiotherapist, 3 X 30min per week of exercises plus walking twice a week. n=97<br>2) Home safety program (Home visit to identify hazards and provision of recommendations to prevent falls). n=100<br>3) Exercise and home safety program. n=98<br>4) Control (social visits). n = 96 | Two social visits during the first six months | Number of falls and fall related injuries | 15% more falls observed in the exercise program (incidence rate ratio = 0.59 [CI 0.42-0.83] v 1.15 [CI 0.82-1.61], however a higher level of adherence led to fewer falls (p=0.001).<br>41% fewer falls in the home safety program.<br>One year of follow up. |
| Chen, 2012 (HK) | RCT | Low vision (6/18 - 3/60) and blind (3/60 or worse).<br>Living in a residential care home.<br>Aged ≥ 70.<br>Mean age = 85.5 ± 6.9 yrs (experimental) and 82.9 ± 7.5 yrs (control)<br>% Males = UNK<br>n = 40 | Modified 8-form Yang style Tai Chi, emphasizing multi-directional weight shifting, head and trunk rotation and awareness of body alignment; 1.5 hours, 3 times a week, for 16 weeks.<br>n = 21 in intervention | Music percussion activity (djembe i.e. drumming) | Knee proprioception, muscle strength (in knee extensors and flexors), balance | Experimental group showed significant improvements in knee proprioception (percentage change of absolute angle error = -25.9 ± 28.8% v 4.2 ± 30.7%, p=0.032) and balance control (greater percentage change in visual ratio (58.1 ± 41.9% v -1.6 ± 29.4%, p=0.006) and vestibular ratio (32.5 ± 40.2% v -17.8 ± 56.8%, p=0.048).<br>Intention to treat analysis. |
| Cheung, 2008 (HK) | RCT | No light perception or VI of 6/120 or worse in better eye with corrective device.<br>Living in care and attention homes.<br>Aged ≥ 65.<br>Mean age = 83 ± 4.7 yrs (experimental) and 84 ± 6.5 yrs (control)<br>% Males = 0% | Structured, individually tailored exercise program designed by a physiotherapist, including warm up, lower limb strengthening exercises (increasing in repetitions and weights), balance exercises. Plus routine group physical activity. 3 X 45 min per week, for 12 weeks<br>n = 27 in intervention. | Routine group physical activity only in care home. | Balance and muscle strength. | Significant improvements in BBS (9.4%, p<0.000), TUG (decrease of 4.7 sec, p<0.0003) and CST (decrease of 2.35 sec, p=0.047) |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | n = 50 | | | | |
| Gleeson, 2015 (AUS) | RCT | Participants recruited from Guide Dogs Australia.<br>Aged ≥ 50.<br>Mean age = 75 ± 11 yrs.<br>% Males = 29%<br>n = 120 | Alexander Technique, 1 X 30 min lesson per week, for 12 weeks, plus usual care.<br>n = 60 in intervention. | Usual care from Guide Dogs Australia. | Short Physical Performance Battery (sit-to-stand, 4m walk test, standing balance test). Postural sway tests, maximal balance range and number of falls. | No statistically significant improvements in primary outcomes at 3 or 12 months between groups.<br>Intervention group reduced postural sway on a firm surface (eyes open) at 3mths (-29.59mm, P<0.01). |
| Gleeson, 2017 (AUS) | RCT | As per Gleeson 2015 | As per Gleeson 2015, | As per Gleeson 2015 | Social and emotional wellbeing | No statistically significant improvements at 3 or 12 months.<br>Emotional subscale approached significance (p=0.06) in favor of intervention at three mths. |
| Hackney, 2015 (USA) | RCT | VI in range 20/30 – 20/632.<br>Recruited from Medical Centre, Senior Independent Living communities, community senior centres.<br>Mean age = 79.3 ± 11 yrs<br>% Males = 47%<br>n = 32 | Adapted Tango Classes, 2 X 1.5 hours per week, for 10-12 weeks (total 30 hours).<br>n = 14 Tango intervention. | FallProof Program | Balance, Mobility, Gait speed and quality-of-life. | Tango and FallProof groups showed improvements on BBS (p=0.001). SOT scores improved by 14% in Tango group and 22% in FallProof.<br>Tango group significantly improved on 6MWT (p=0.016), cognitive-TUG(p=0.03) and gait (p<0.001).<br>Last observation carried forward analysis. |
| Jeter, 2012 (USA) | Pre Post | Visual field <20 deg and/or visual acuity < 20/200.<br>Recruited from Low Vision Clinic of tertiary hospital and local community based listings.<br>Mean age = 46 ± 12 yrs.<br>% Males = 30%<br>n = 10 | Ashtanga-Based Yoga (AYT), 1 X orientation session, 1 class per week and 2 sessions per week at home, for 8 weeks. | None | Sleep, anxiety, depression, stress, balance, respiratory rate, mindfulness, balance | Improvements observed in all pre-post measures (descriptive analysis only).<br>Exit surveys showed 5/8 reported reduced stress, 3/8 reported improved sleep. 7/8 reported improved relaxation and focus. 8/8 expressed an interest in a yoga program like this in the future.8/8 subjects were extremely or mostly satisfied with program. |
| Jeter 2015 (USA) | RCT | Corrected visual acuity worse than 20/200 and/or visual field less than 20 deg in diameter (legal blindness). Recruited from Low Vision Clinic of tertiary hospital.<br>Mean age = 55 ± 17 yrs (experimental) and 55 ± 10 yrs (control)<br>% Males = 29%<br>n = 21 | Ashtanga-Based Yoga (AYT), 1 X orientation session, 1 class per week and 2 sessions per week at home, for 8 weeks.<br>n = 11 in intervention | Waitlist Control | Postural stability, balance, physical function | Absolute values of mean total velocity significantly increased in AYT group (Eyes Open; t(8)=-3.66, p=0.01 and Eyes Closed; t(8)=-3.90, p=0.01). Significant baseline post AYT increase in somatosensory contribution to balance SI velocity (Eyes Open; t(8)=-2.42, p=0.04 and Eyes Closed; t(8)=-3.96, p=0.01). Significant increase in vestibular contribution to balance (t(8)=-2.47, p=0.04). Significant increase in one leg stand (z=-2.10, p=0.04), chair sit and reach (z=-2.22, p=0.01), and 30s chair stand (z=-1.98, p=0.05) following AYT program. No changes in control group. |
| Kingston, 2018 (USA) | Pre Post | No definition of blindness reported.<br>Recruited from Blind Centre.<br>Mean age = 80 yrs.<br>% Males = 88%<br>n = 24 | Matter of Balance program (CBT and exercise training in 6 of 8 sessions; Tennstedt, 1998 ). 2 X 2 hours per week for 4 weeks. | None | Mobility and balance | Mean decrease of 2.15 sec on TUG, small increase in total POMA (1.5 points) |
| Kovács, 2012 (Hungary) | RCT | Visual acuity 20/30-20/400.<br>Recruited from National Institution for Blind People. Aged ≥ 60 years and over. | Multimodal program - balance and strength exercises based on Otago Exercise Program, using increasing weights. Included 20-30min/day walking program. 30min X 2 week | Standard osteoporosis program alone (4Xwk). | Balance, everyday living activities, mobility, falls | Significant improvements in experimental group pre and post intervention (BBS 41.81 ± 7.52 v 45.09 ± 7.41 p=0.036, TUG 20.72±4.87 v 17.93±4.96 p<0.005). TUG time differed significantly between experimental and control (p=0.001).<br>Number of falls = 22. |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | Mean age = 68.7 ± 6.9 yrs (experimental) and 69.7 ± 6.5 yrs (control).<br>% Males = 0%<br>n = 41 | multimodal exercise program + 2 X week standard osteoporosis program, for 6 months.<br>n = 21 in intervention | | | Significantly shorter time to first fall in the control group (15 wks. V 19 weeks, p = 0.049). |
| Larsson, 2006 (Sweden) | Pre Post | Visual acuity of less than 0.05 in best eye or visual field less than 5 deg. Recruited from Low Vision Clinic.<br>Of working age.<br>Mean age = 52.3 ± 11.4 yrs<br>% Males = 14% (of final participants)<br>n = 8 | Body awareness exercises and dance based training. 75min X 2 sessions week, for 8 weeks. | None | Balance, functional reach, functional balance, mobility, gait speed, Activity scale | Statistically significant improvements observed in;<br>Functional reach = 6/7<br>TUG = 1/7<br>Max. Gait speed = 2/7<br>One leg stance (left) = 3/7<br>One leg stance (right) = 2/7<br>Max. Step length = 5/7 |
| Miszko, 2004 (USA) | Pre Post | Recruited from local rehabilitation centre.<br>Mean age = 52.6 ± 12.8 yrs.<br>% Males = 70%<br>n = 10 | Tai Chi Classes. 2 X 1 hour, per week for 8 weeks, 15min per day outside of class, plus regular orientation and mobility training. | None | Muscular strength, work and power of knee; balance; functional reach and quality of life | Improvements seen in muscular strength (flexion 16.5%, extension16.9%), power (flexion 30%, extension 6.8%), and work (flexion 17.7%, extension 17.1%), small change in functional reach (0.75%) and BBS (2%), improvement in single stance time (6.3%). Improvement in frequency, independence and satisfaction with performing mobility tasks after tai chi. |
| Ponchillia, 1992 (USA) | Pre Post | Congenital total blindness.<br>Recruited from University.<br>Aged 24-37 yrs.<br>% Males = 0%<br>n = 3 | Aerobics sessions led by trained instructor including high and low impact movements. 2 X 50 minutes per week, for 7 weeks. | None | Skinfolds, abdominal muscle strength and endurance, flexibility, heart rate, accuracy of performing tasks, step test. | Favorable changes in fitness based on step test, abdominal strength and endurance (24% mean increase on sit up test), body fat (mean 3.5% decrease) and accuracy of performance. |
| Salari, 2013 (Iran) | Pre Post | Blind athletes.<br>Mean age = 22.4 ± 5.4 yrs.<br>% Males = 0 %<br>n = 30 | Core stability training program. Approximately 3 X 1hr per week (every two days), for 8 weeks | None | Balance (measured by Flamingo Test and Y balance) | Significant increase in static and dynamic balance in anterior direction, internal posterior, external posterior and total balance. |
| Surakka, 2008 (Finland) | Pre Post | Partially sighted, blind or deaf-blind individuals.<br>Mean age = 54 ± 9.9 yrs.<br>% Males = 33% (of final participants)<br>n = 27 | Physical training including movements to improve balance, coordination, relax neck and shoulder muscles. 60 minutes 3 X per week for 5-6 weeks. | None | Physical condition, mental state and balance. | Self reported improvements in physical condition (22/24), mental state (21/24) and balance (11/24). Main motivators were better physical condition (21/24) and peer group (12/24) |
| Surakka, 2011 (Finland) | RCT | Partially sighted (best corrected visual acuity < 0.3) or blind (visual acuity < 0.1, or visual field < 10 deg with glare and hemeralopia). Recruited from Rehabilitation Services at a tertiary hospital.<br>Mean age = 55 ± 9.0 yrs (experimental) and 57 ± 7.2yrs (control).<br>% Males = 45%<br>n = 29 | Physical training designed for VI and deaf-blind persons to improve balance, posture, coordination, tense neck and shoulder muscles, and loss of spinal rotation and reciprocal arm swing. 60 minutes 3 X per week for 5-6 weeks.<br>N=15 in intervention | No intervention | Flexibility | Significant improvement in flexibility of trunk in the experimental v control group (p=0.0068). |

| | | | | | | |
|---|---|---|---|---|---|---|
| Waterman, 2016 (UK) | RCT | Binocular visual acuity > 0.6, Snellen equivalent = 6/24 and/or moderate visual field loss (>20% of the test locations in a binocular Esterman test).<br>Recruited from the community.<br>Mean age = 81.4 ± 8.6 yrs.<br>% Males = 35%<br>n = 49 | Home Safety Arm (occupational therapist discussion with participants and action plan to alter environment to reduce risk of falls). Home exercise program arm (based on Otago Exercise Program involving strength and balance exercises in addition to walking). 30min X 3 times per week plus walking X 2 times per week, for 6 months.<br>n = 17 in intervention | Usual care plus social visits | Number of falls, fear of falls, adherence rates, quality of life | No statistically significant differences. |

Abbreviations: AUS = Australia, AYT = Ashtanga-Based Yoga, BBS = Berg Balance Score, CST = Chair Stand Test, HK = Hong Kong, NZ = New Zealand, POMA = Performance Oriented Mobility Assessment, RCT = Randomized Controlled Trial, SOT = Sensory organization test, 6MWT = Six minute walk test, TUG = Timed Up and Go, UK = United Kingdom, USA = United States of America, VI = visual impairment.