INPLASY

# Effects of exercise interventions on health-related quality of life in healthy older adults: a systematic review and meta-analysis of randomized controlled trials

INPLASY202670005
doi: 10.37766/inplasy2026.7.0005
Received: 3 July 2026
Published: 3 July 2026

Zhang, SJ; Lu, PT.

**Corresponding author:**
Pengtao Lu

381223044@qq.com

**Author Affiliation:**
School of Physical Education, Ningxia Normal University, Guyuan, Ningxia, China.

**ADMINISTRATIVE INFORMATION**

**Support -** Not applicable.

**Review Stage at time of this submission -** Completed but not published.

**Conflicts of interest -** None declared.

**INPLASY registration number:** INPLASY202670005

**Amendments -** This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 3 July 2026 and was last updated on 3 July 2026.

## INTRODUCTION

**Review question / Objective** Accordingly, the present systematic review and meta-analysis aimed to evaluate the effects of structured exercise interventions on HRQoL in healthy older adults based on evidence from randomized controlled trials. The primary objective was to determine whether exercise interventions improve overall HRQoL in this population. Secondary objectives were to examine the effects of exercise on specific HRQoL domains and to explore whether intervention characteristics, including exercise modality, session duration, weekly frequency, and total intervention period, were associated with differences in intervention effects. By focusing specifically on healthy older adults, this study seeks to provide more targeted evidence for exercise-based strategies to promote healthy ageing and improve quality of life.

**Condition being studied** Health-related quality of life in healthy older adults

Health-related quality of life (HRQoL) refers to older adults' perceived physical, psychological, and social well-being. Although healthy older adults may not have diagnosed severe physical or mental disorders, ageing is often accompanied by declines in muscle strength, cardiorespiratory fitness, balance, mobility, and psychosocial engagement, which may gradually affect daily functioning and perceived quality of life. This review focuses on HRQoL among healthy older adults aged 60 years or above without diagnosed severe diseases or mental disorders, and examines whether structured exercise interventions can improve overall HRQoL and its physical and mental dimensions.

## METHODS

**Participant or population** Healthy older adults aged 60 years or above without diagnosed severe physical or mental disorders. Studies involving participants with diagnosed diseases, frailty-related disorders, or specific clinical conditions will

be excluded. Both male and female healthy older adults will be eligible.

**Intervention** Structured exercise interventions, including aerobic exercise, resistance exercise, mind–body exercise, and multicomponent exercise. Aerobic exercise may include walking, treadmill exercise, cycling, or jogging. Resistance exercise may include machine-based resistance training, elastic-band training, or free-weight training. Mind–body exercise may include yoga or Tai Chi. Multicomponent exercise refers to programmes combining two or more exercise modalities, such as aerobic, resistance, balance, flexibility, or functional training.

**Comparator** Control groups receiving usual care, no intervention, health education, wait-list control, or maintaining routine daily activities.

**Study designs to be included** Randomized controlled trials (RCTs) published in English or Chinese will be included.

**Eligibility criteria** Inclusion criteria: participants are healthy older adults aged ≥60 years without diagnosed severe physical or mental disorders; interventions are structured exercise programmes, including aerobic exercise, resistance exercise, mind–body exercise, or multicomponent exercise; comparators are usual care, no intervention, health education, wait-list control, or maintenance of routine daily activities; outcomes include health-related quality of life measured by validated instruments such as SF-36, SF-12, WHOQOL, WHOQOL-BREF, WHOQOL-OLD, or other standardized HRQoL scales; study design is randomized controlled trial; full-text articles are published in English or Chinese.

Exclusion criteria: studies involving participants with diagnosed diseases, frailty-related disorders, or specific clinical conditions; studies in which exercise is not the primary intervention; combined interventions where the independent effect of exercise cannot be determined; studies without HRQoL outcomes or insufficient data for effect size calculation; non-randomized studies, observational studies, conference abstracts, reviews, protocols, case reports, dissertations, duplicate publications, unavailable full texts, or incomplete data after attempts to contact authors.

**Information sources** Electronic databases will be searched from inception to June 2026, including PubMed, Web of Science, Embase, Scopus, Cochrane Library, China National Knowledge Infrastructure (CNKI), Wanfang Data, and VIP Database. Search terms will include combinations of terms related to health-related quality of life, quality of life, exercise intervention, physical activity, exercise training, older adults, elderly, healthy older adults, and randomized controlled trials. Reference management software will be used to organize retrieved records and remove duplicates. When outcome data are incomplete or unclear, attempts will be made to contact the corresponding authors for additional information.

**Main outcome(s)** The main outcome will be overall health-related quality of life (HRQoL) in healthy older adults after structured exercise interventions. HRQoL will be assessed using validated instruments, including SF-36, SF-12, WHOQOL, WHOQOL-BREF, WHOQOL-OLD, LEIPAD, or other standardized HRQoL scales. Because different HRQoL instruments may be used across studies, standardized mean differences (SMDs) with 95% confidence intervals will be calculated. The main comparison will be post-intervention HRQoL between exercise intervention groups and control groups.

**Quality assessment / Risk of bias analysis** The methodological quality of included studies will be independently assessed by two reviewers using the Physiotherapy Evidence Database (PEDro) scale. The PEDro scale includes items related to eligibility criteria, random allocation, allocation concealment, baseline comparability, blinding of participants, therapists and assessors, adequacy of follow-up, intention-to-treat analysis, between-group comparisons, and reporting of point estimates and variability. The first item will not be included in the total score. The total PEDro score ranges from 0 to 10, with scores of 9–10 classified as excellent, 6–8 as good, 4–5 as fair, and below 4 as poor quality. Disagreements will be resolved through discussion or adjudication by a third reviewer.

**Strategy of data synthesis** Meta-analysis will be performed using Review Manager 5.4 and Stata 19.0. Because health-related quality of life may be measured using different instruments across studies, standardized mean differences (SMDs) with 95% confidence intervals will be calculated. A random-effects model will be used to account for potential clinical and methodological heterogeneity. Statistical heterogeneity will be assessed using the chi-square test and $I^2$ statistic. $I^2$ values of 50% will be interpreted as low, moderate, and substantial heterogeneity, respectively. Subgroup analyses will be conducted to explore potential sources of heterogeneity. Publication bias will be assessed using Begg's

rank correlation test and Egger's linear regression test. A p value <0.05 will be considered statistically significant.

**Subgroup analysis** Predefined subgroup analyses will be conducted according to exercise modality, session duration, weekly exercise frequency, and total intervention period. Exercise modality will be classified as aerobic exercise, resistance exercise, mind–body exercise, and multicomponent exercise. Session duration will be categorized as ≤55 min, 56–75 min, and ≥76 min per session. Weekly exercise frequency will be grouped as ≤2 sessions per week, 3 sessions per week, and ≥4 sessions per week. Total intervention period will be classified as ≤12 weeks or >12 weeks.

**Sensitivity analysis** Sensitivity analysis will be performed using a leave-one-out approach. Each included study will be sequentially removed, and the pooled effect size will be recalculated after each exclusion to assess the robustness and stability of the results. Sensitivity analyses will be conducted for overall HRQoL and, where data are available, for physical and mental HRQoL dimensions. If exclusion of a single study materially changes the magnitude, direction, or statistical significance of the pooled effect, the potential influence of that study will be further examined.

**Country(ies) involved** China.

**Keywords** Health-related quality of life; Healthy older adults; Exercise intervention; Randomized controlled trial; Meta-analysis; Healthy ageing.

**Contributions of each author**

Author 1 - Shuaijie Zhang.
Email: 3282807291@qq.com
Author 2 - Pengtao Lu.
Email: 381223044@qq.com