

## Preventing weight gain through exercise and physical activity in the elderly: a systematic review

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### CRD summary

The review concluded that exercise and physical activity could effectively prevent weight gain in older adults and postmenopausal women for either weight loss or weight maintenance. There was considerable variation in the interventions used, some inconsistency in the results of observational studies and the quality of the evidence was uncertain, so the authors' conclusions may not be reliable.

### Authors' objectives

To evaluate the effectiveness of exercise and activity for preventing weight gain in older people.

### Searching

PubMed was searched from January 2000 up to June 2011. Search terms were reported. A manual search was also undertaken, but what this consisted of was not stated.

### Study selection

Studies of exercise or physical activity, alone or as part of another intervention, aimed at preventing weight gain in older adults (aged at least 65 years) or post-menopausal women were eligible for inclusion. To be included, studies had to measure body weight or related outcomes with reference to preventing weight gain. Studies had to assess outcomes at least twice.

The included studies considered: self-reported exercise history; low, moderate or high intensity exercise; or combined exercise with a hypocaloric diet. Five studies were conducted in overweight adults; four were conducted in general population or not-weight specific population. Study types included randomised controlled trials (RCT), prospective study, secondary data analysis, and longitudinal survey. Forms of exercise in RCTs included moderate-intensity exercise, strength training, and walking. Forms of exercise in observational studies included sports, recreational exercise, housework, and manual labour. Six studies were in post-menopausal women and three were in older adults. Most studies were conducted in the USA. Data for included studies were collected from 1991 to 2007 (where reported). The reported outcomes included weight, waist circumferences, body mass index (BMI), and lean body mass.

Two reviewers independently performed study selection.

### Assessment of study quality

The authors did not state whether a quality assessment was undertaken.

### Data extraction

Data were extracted on the improvements in outcomes in the studies, such as average weight loss in intervention and control arms in RCTs, and association between exercises and weight loss in observational studies. Data on subgroups (such as by gender) were extracted (where reported).

Two reviewers independently extracted data; disagreements were resolved by consensus.

### Methods of synthesis

A narrative synthesis was undertaken due to the reported methodological heterogeneity across studies. Extracted results from each study were tabulated and discussed. Observational studies and trials were discussed separately.

### Results of the review

Nine studies were included in the review (90,319 participants) comprising four RCTs of exercise interventions, one non-controlled trial, and four observational studies. Study sample size ranged from 34 to 641 participants in trials, and 3,354 to 58,610 in observational studies.

In the RCTs, the intervention group generally had a statistically significant greater weight loss than the control group, varying from a weight loss of 0.3 to 5.9kg across trials. Other outcomes were similar to weight loss, but not all were statistically significant.

In the observational studies, which were all in overweight people, exercise tended to be associated with weight maintenance in most analyses, although weight gain was also observed in some studies.

### Authors' conclusions

Exercise and physical activity could effectively prevent weight gain in older adults and postmenopausal women for either weight loss or weight maintenance.

### CRD commentary

Inclusion criteria for the review were broadly defined. A limited search was conducted in one relevant database. Publication bias was not assessed and the grey literature did not appear to have been searched, so relevant studies may have been missed. Attempts were made to reduce error and bias throughout the review.

Quality assessment of included studies did not appear to have been undertaken, which made assessing the validity of the evidence base difficult. Some of the studies were observational and prone to biases. Some of the outcomes and interventions relied on self-report, which may be biased. The authors also noted that the studies were heterogeneous in methods and types of exercise. A narrative synthesis was presented.

There was considerable variation in the interventions used, some inconsistency in the results of observational studies, and the quality of the evidence was uncertain, so the results may not be reliable

and the authors' conclusions may not be appropriate.

**Implications of the review for practice and research**

Practice: The authors stated that the prevention of weight gain should be considered to be a continuing undertaking lasting from younger to older age.

Research: The authors stated that the effects of exercise interventions in non-overweight elderly needs studying. The optimum amount of weight loss in elderly adults also needed determining.

**Funding**

None.

**Bibliographic details**

Stehr MD, von Lengerke T. Preventing weight gain through exercise and physical activity in the elderly: a systematic review. *Maturitas* 2012; 72(1): 13-22

**PubMedID**

[22381255](https://pubmed.ncbi.nlm.nih.gov/22381255/)

**Original Paper URL**

[http://www.maturitas.org/article/S0378-5122\(12\)00052-7/abstract](http://www.maturitas.org/article/S0378-5122(12)00052-7/abstract)

**Indexing Status**

Subject indexing assigned by NLM

**MeSH**

Aged; Body Composition; Exercise /physiology; Humans; Motor Activity /physiology; Obesity /prevention & control; Weight Gain /physiology; Weight Loss /physiology

**AccessionNumber**

12012020055

**Database entry date**

24/10/2012

**Record Status**

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