

Falls prevention: Individual exercise programs for osteoporosis/osteopenia

Health Care: Falls Prevention for Older Adults

Literature review updated January 2018.

As part of WSIPP's research approach to identifying evidence-based programs and policies, WSIPP determines "what works" (and what does not work) to improve outcomes using an approach called meta-analysis. For detail on our methods, see our [Technical Documentation](#). At this time, WSIPP has not yet calculated benefits and costs for this topic.

Program Description: Individual exercise programs for individuals with osteoporosis or osteopenia aim to prevent falls and fractures by providing supervised exercises that improve balance and postural control. In the included study, a physiotherapist supervised a one-year exercise program, consisting of three 30-minute outpatient sessions weekly. For the rest of each week, participants were assigned home-based exercises for one hour daily. Participants were women with osteoporosis.

This meta-analysis includes only interventions delivered to community-dwelling older adults with osteoporosis or osteopenia. It excludes exercise interventions that had both group class and individual components. We analyze these interventions for community-dwelling older adults with osteoporosis or osteopenia separately.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect size and standard error			Unadjusted effect size (random effects model)	
			ES	SE	Age	ES	p-value
Falls [†]	1	49	0.432	0.222	69	0.432	0.064

[†]The effect size for this outcome indicates an incidence rate ratio (IRR), not a standardized mean difference effect size. An IRR less than one indicates a lower rate of the outcome in the treatment group relative to the comparison group; an IRR greater than one indicates a higher rate of the outcome. The treatment n for this outcome represents person-years.

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our [Technical Documentation](#).

Citations Used in the Meta-Analysis

Mikó, I., Szerb, I., Szerb, A., & Poor, G. (2017). Effectiveness of balance training programme in reducing the frequency of falling in established osteoporotic women: A randomized controlled trial. *Clinical rehabilitation*, 31(2), 217-224.

For further information, contact:
(360) 664-9800, Institute@wsipp.wa.gov

Printed on 03-28-2024



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