

Effectiveness of exercise on fall prevention in community-dwelling older adults: a two-year randomized controlled study of 914 women

Full Summary:

In the largest study to date of the effectiveness of communal exercise interventions for fall prevention, researchers found that tai chi coupled with weight training significantly reduced both falls and falls with serious injury, compared to just education on fall prevention.

The researchers conducted a two year, randomized controlled exercise study that involved 914 women in eastern Finland. The participants' average age was 76.5, and they all lived in an urban community setting. The control group received an initial education on fall prevention and then were allowed to resume their normal activities. The participants in the exercise intervention group were given an initial six months of supervised exercise training. The training was intended to improve lower limb muscle strength, active range of motion, joint mobility and postural balance. The protocol involved weekly engagement in one hour of circuit type gym exercise and a one hour tai chi session. Using weight training equipment, the goal of the gym exercises was to improve postural muscle groups in the legs, back and trunk, with additional workouts for the arms and chest. The tai chi portion used tai chi exercises to improve postural control, body weight shifting and static balance.

A total of 1,380 falls were reported during the twenty four month trial. 69% of falls occurred outdoors. Whether indoors or outdoors, nearly half of the falls occurred on even surfaces and 68.9% resulted from tripping or slipping.

Compared to the control group (falls prevention education only), the exercise intervention group showed a 14.2% reduction in falls. Falls with severe injury and pain were reduced by 41%. Indoor falls decreased by 25.6%. A notable observation was an increase in one-leg stance time and a decrease in loss of leg extension strength. Unfortunately, this study does not delineate differences in results between the circuit type gym exercise group and the tai chi group.

A particular strength of this study is the close method of falls monitoring; interviews about falls were conducted within two weeks of an incident. A comparison of health and social information between participants and non-participants of the study indicated that the study participants were "better off for physical and mental well-being, functional capability and socio-demographic status than women on average in the region."

The study's authors conclude that community-driven fall prevention in urban environments can be effective for aging women who participate in such programs. They recommend development and promotion of such programs through municipal services.

Rikkonen, T. et al (2023) **Effectiveness of exercise on fall prevention in community-dwelling older adults: a 2-year randomized controlled study of 914 women.** Age and Aging 2023, 52, 1-9.

<https://doi.org/10.1093/ageing/afad059>

–summarized by Deborah Yafee, 10/23