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## Effectiveness of a group exercise program in a long-term care facility: a randomized pilot trial.

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### Abstract

**OBJECTIVE:** The purpose of this pilot was to determine whether a strength and flexibility program in frail long-term care facility (LTC) residents would result in improved function.

**DESIGN:** A prospective, randomized, controlled, semicrossover trial was designed with participants assigned either to group exercise (EX) or recreational therapy (C). In the EX group, the intervention continued for 1 year. In the C group, recreation continued for 6 months; these controls were then crossed over to the same exercise intervention as the EX group and followed for an additional 6 months. Functional outcomes were measured at baseline and 3, 6, 9, and 12 months for both groups.

**SETTING:** A LTC facility, which included both assisted living (AL) and nursing home (NH) residents.

**PARTICIPANTS:** Twenty frail residents (5 from NH, 15 from AL) aged 75 to 99 years at one LTC facility.

**INTERVENTION:** After random group assignment, the EX group met 1 hour three times per week. An exercise physiologist and LTC staff conducted sessions which included seated range of motion (ROM) exercises and strength training using simple equipment such as elastic resistance bands (therabands) and soft weights. The C group met three times per week and participated in activities such as painting during the first 6 months, before crossing over to exercise.

**MEASUREMENTS AND METHODS:** Objective measures of physical and cognitive function were obtained at baseline and 3, 6, 9, and 12 months using the timed get-up-and-go test (TUG), Berg balance scale, physical performance test (PPT), and mini-mental status exam (MMSE). Because we were interested in the impact of exercise on multiple endpoints and to protect the type I error rate, a global hypothesis test was used.

**RESULTS:** There was a significant overall impact across the four measures of the exercise intervention ( $P = 0.013$ ). Exercise benefit as indicated by the difference between exercise and control conditions showed exercise decreased TUG by 18 seconds, which represents an effect size (in standard deviation units) of 0.50, increased PPT scores by 1.3, with effect size = 0.40, increased Berg scores by 4.8, with effect size of 0.32, and increased MMSE by 3.1, with effect size = 0.54. Except for the Berg, 90% confidence intervals on these exercise effects excluded 0.

**CONCLUSION:** Frail elderly in a LTC facility were able to participate and benefit from a strength training program. The program was delivered with low-cost equipment by an exercise physiologist and LTC staff. The advantage of such a program is that it provides recreational and therapeutic benefits.

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