

Grow Strong, Live Long Fitness Study with Elderly Retirement Home Independent Living Residents.

Robert Simons, PhD., CHES, MS, Fountains at Boca Ciega Bay, Saint Petersburg, Florida

OBJECTIVES:

This study sought to determine changes in functional ability, muscle strength, joint flexibility, and health knowledge after 16 weeks of exercise interventions. Sixty-four (45 women and 19 men) physician-cleared, sedentary, elderly volunteers (average age 84) were randomly assigned to a non-exercising control group or one of two exercise groups, strength training (ST) or cardiovascular training (CT). The ST group trained 2x's per week at 75% of 1RM, performing 1 set of 10 repetitions on six different Keiser strength training machines. When 10 repetitions were completed with proper form for 3-5 consecutive sessions the weight load was increased by 5 percent. The CT group walked an average of two exercise sessions per week at an intensity set by each individual's 880 yard walk "pre-test" score. All participants were strongly encouraged to attend health lectures given approximately every 3 weeks. Subjects in all three groups were assessed for functional ability before and after a 16-week intervention, using the AAHPERD Functional Fitness Assessment for Adults Over the Age of 60 Years. Additional assessments included 1RM strength using Keiser equipment, joint flexibility using a mechanical goniometer, and health knowledge using the Fast-Simons Senior Adult Health Knowledge Test.

RESULTS:

The ST group improved an average of 33% in strength, 18% in coordination, 14% in agility, 7% in endurance, 10% in flexibility, and 13% in health knowledge. The CT group improved an average of 12% in strength, 13% in coordination, 9% in agility, 6% in endurance, 11% in flexibility and 15% in health knowledge. The control group improved an average of 12% in strength, 13% in coordination, 2% in flexibility and 16% in health knowledge, but exhibited a 21% decline in agility and a 6% decline in endurance. All groups showed a 1% improvement in the Ponderal index. The subjects also reported improvements in quality of life indicators (social inter-activeness, energy levels and mood).

SUMMARY:

This study shows that a 16 week exercise intervention of strength training or walking results in significant improvement in physical function of elderly men and women aged 66 to 96 years when compared with a non-exercising control group. Strength training is more effective at improving strength, coordination and agility than walking. Strength training increased lower body strength by 38% overall and upper body strength by 21.3% overall. Improvements in strength, endurance, coordination, agility and flexibility

translate into improvements in functional independence of 14% for the strength training group and 9% for the walking group. The author also reported a 61 percent decrease in the incidence of falls. Other significant quality of life benefits appear to result from elderly residents engaging in a regular exercise program.

DISCUSSION:

This study has important implications for understanding the cost/benefits of strength training programs in senior housing. It is estimated that every point increase in a residents functional independence score (FIM) reduces cost of care by 50 cents a day (Wescott, 2000). A 14% gain in functional ability therefore could represent a cost of care reduction of \$7.00 per day. Multiplying this by the 21 subjects in the strength-training group equals a daily cost-of-care reduction of \$147.00. On a yearly basis this equals \$53,655, far more than the cost of strength training programs. Cost savings associated with reduced falls can also be very significant. Exercise programs geared toward improving the physical function of older adults should include strength training, and further studies need to be done to solidify the link between changes in functional independence scores and cost savings.

KEISER PIECES USED:

Leg extension, leg curl, leg press, upper back, chest press, lower back