

Gentle Exercise Improves Balance in Frail Elderly

BY MICHELE G. SULLIVAN
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NASHVILLE, TENN. — Practicing postural and strength exercises twice a week leads to significant increases in balance and overall activity among the frail elderly, Sue Scott said in a poster presented at the annual meeting of the American College of Sports Medicine.

The fear of a disabling fall causes many older people to severely restrict their activity levels, said Ms. Scott, an exercise specialist in Portland, Ore. The fear is especially intense in those who have already experienced a fall.

"Reductions in activity levels are common, causing greater declines in physical and social activities and activities of daily living," she told FAMILY PRACTICE NEWS.

However, published research—including her own 40-week randomized study—indicates that balance can improve with even a modest amount of gentle exercise. "About halfway through our study, we were already seeing changes in balance,

without a commensurate increase in strength," she said.

Ms. Scott enrolled 84 participants aged 70 years and older, who were all living in retirement or assisted living communities. The oldest participant was 100 years old; the mean age was 83 years. About 80% of the participants were women.

The 45-participant intervention group attended twice-weekly sessions for 16 weeks; one session included a 45-minute class of flexibility, balance, and strength training, and the other was a 30-minute practice session. From weeks 17-40, the intervention group was asked (but not required) to practice the exercises they had learned.

The control group (30 participants) had no contact with the class leaders and was given no instruction to exercise.

Participants of each of the groups were evaluated at baseline and at weeks 16, 33, and 42.

Ms. Scott began each class with a set of stretching exercises to promote flexibility, followed by simple strength-building

moves involving legs, back, and posture. She devoted the rest of the session to balance training. "A lot of what we did was try to get them to use their other senses to promote balance," she said.

"Most of these people rely heavily on visual clues, but they can't see what's going on under their feet," Ms. Scott said. To promote balance perception with the inner ear, for example, she dimmed the room and asked participants to walk slowly on a treadmill, or bend over and pick up a lit flashlight.

At the study's end, the intervention group scored significantly better than the control group on all measures: chair stand (lower body strength), functional reach (balance), gait speed, and 8-foot up and go (mobility, agility, and strength).

Additionally, Ms. Scott said, the intervention group showed significantly increased daily activity, as measured by 1-week activity recall questionnaires.

"I think they felt better about their balance and more like doing things because the activities were not as anxiety produc-



Exercises for balance help elderly feel more confident, therefore stay active.

ing. Also, since we encouraged them to be more active, they might have had increased motivation to go out and do things," she said.

Information about the exercises mentioned are available on Ms. Scott's Web site, www.ablebodies.org. ■

Weight Training Prevents Muscle Decline, Eases Pain in Elderly Patients

BY MICHELE G. SULLIVAN
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NASHVILLE, TENN. — Structured weight-training and physical conditioning programs for the elderly can reduce pain and prevent the expected age-related physiologic decline, researchers said at the annual meeting of the American College of Sports Medicine.

The significant improvements associated with weight and aerobic training in these studies reinforce the idea that exercise is beneficial for people of any age. "Our program was structured [to be] effective in reducing and/or reversing age-associated changes in functional performance," said Jessie Jones, Ph.D., codirector of the Center for Successful Aging at the University of California, Fullerton.

Dr. Jones recruited 85 patients aged 61-82 years for her 5-year study; a total of 21 women and 19 men completed the program. All came to the university exercise center for twice-weekly, 75-minute sessions, 24 weeks each year. The program consisted of warm-up; aerobic training on treadmills, stationary bikes, or step machines; strength training with machines and free weights; and a cool-down period.

Patients were assessed on strength, aerobic fitness, and balance and mobility at baseline, four times each year, and at the end of the program. The data for the changes during the 5 years were compared with the expected age-related changes in a reference pop-

ulation. "On the average, you see a 1%-per-year decline in physical measures between ages 60 and 90," she said. "So in a reference group, we would expect to see a 5% decline over 5 years."

The largest changes occurred in upper- and lower-body strength for both men and women. "Instead of the expected 5% decline in upper-body strength, both men and women had a 16%-17% increase," Dr. Jones told FAMILY PRACTICE NEWS. "It was basically a reversal of the aging process."

Lower-body strength increased as well. "For this measure, we would have expected a 7.5% decline over 5 years. Instead, we saw an 8% increase for women and a 6% increase for men."

Aerobic endurance did decline for patients of both sexes but at about half the expected rate of 5% over 5 years. (Women had a decline of 3% and men, a decline of 2%.) Balance and mobility improved 2% in women, rather than declining the expected 6% over 5 years. In men, however, balance and mobility declined 6%.

In addressing the high dropout rate in the study, Dr. Jones acknowledged that it's tough getting any group—especially one composed of members with unpredictable health issues—to commit to a 5-year workout plan. She used social incentives, such as parties, to keep her participants coming back to the gym. "It's hard to get all of them to work out consistently at the same intensity, due to day-to-

day fluctuations in health, pain, and medical conditions," said Dr. Jones. "But this really became a social highlight for a lot of our people."

Even a brief training program can reap significant benefits, said Kathleen Knutzen, Ph.D., who reported that an 8-week strength-training program reduced the perception of pain among another group of older adults.

The randomized study included 97 community-dwelling adults aged 60-83 years. The intervention group (79 participants) participated in an 8-week training program consisting of a warm-up and stretching routine followed by high-resistance weight training of 8-10 repetitions for each exercise. Participants started out lifting 50% of their one-repetition maximum. The load increased each week, until by week 4, they were lifting 80% of their baseline one-repetition maximum.

Dr. Knutzen, of Western Washington University, Bellingham, used the McGill Pain Questionnaire to assess pain at baseline and at the study's end. Baseline mean score on the total pain index was about 6 for both groups; at study's end, it fell to 3 for the intervention group and rose to 6.2 in the control group. Participants in the intervention group also reported having pain at fewer body sites after the program; the control group reported no change.

"Our older patients often report improvements in both pain and function within a week or two of starting a weight-training program," Dr. Knutzen said in an interview. ■

Diabetes Accelerates the Decline of Muscle Strength in Older Adults

SAN DIEGO — Older adults with diabetes are more likely to have poor muscle quality and accelerated loss of strength over a 3-year period, compared with their peers who don't have the disease, Seok Won Park, M.D., reported at the annual scientific sessions of the American Diabetes Association.

"These characteristics may contribute to the development of physical disability in older adults with diabetes," said Dr. Park, an epidemiologist at the University of Pittsburgh.

Although it is known that older adults with diabetes face a two- to threefold higher risk of physical disability, this increased risk has not been studied with regard to changes in muscle characteristics, such as strength.

Dr. Park and his associates used an isokinetic dynamometer to evaluate knee extensor strength and used dual-energy x-ray absorptiometry (DXA) to measure muscle mass in a cohort of 1,863 men and women with a mean age of 74 who were enrolled in the Health, Aging, and Body Composition Study sponsored by the National Institute on Aging. Study participants returned for follow-up evaluations 3 years later.

The researchers defined muscle quality as muscle strength per unit of regional muscle mass in kilograms.

Baseline measurements revealed that older adults with diabetes had greater leg muscle mass than controls, but knee extensor strength was lower in diabetic men, compared with men in the control group.

Among women, absolute strength at baseline did not differ by diabetes status, but muscle quality was significantly lower in women with diabetes, compared with controls. This was also the case for men with diabetes.

At 3 years, men and women with diabetes showed a more rapid decline in muscle mass, compared with controls. This greater loss of leg muscle mass among older men and women with diabetes accounted for some of the loss of strength over the 3-year period, but they also had a larger decline in muscle quality, compared with controls, Dr. Park noted.

The results remained similar after the researchers adjusted for sex, age, race, combined chronic disease, smoking, alcohol consumption, and level of physical activity.

—Doug Brunk