



Stay Strong, Stay Healthy Evidence Based Program Statement

Summary

Stay Strong, Stay Healthy (SSSH) is an eight-week exercise program for older adults and sedentary middle-aged adults. The goal of this evidence-based program is to improve health and quality of life through strength training. Sessions include warm-up exercises, simple strengthening exercises with or without weights, and cool-down stretches.

Despite compelling research about the benefits of muscle strengthening, the majority of older adults, particularly women, do not currently perform these exercises. There are many reasons, including: fear of injuring themselves, no experience with lifting weights, lack of access to a professional experienced with older populations, expense of fitness centers, which often aren't geared towards older adults, and few community programs. SSSH addresses these problems by providing a safe, welcoming environment where groups of older adults can learn how to strengthen their muscles from certified instructors.

Sessions meet for one hour, twice a week. A day of rest is scheduled between exercise classes. Participants are encouraged to do the exercises on their own one other time during the week. Over the eight weeks, participants learn the exercises and begin to improve strength and balance. After eight weeks, participants are encouraged to continue this effective program at home or with a community group.

Instruction is provided by trained and certified university extension faculty. A host agency partner provides the facilities.

Potential health effects for older adults

Aging adults, particularly older women, can benefit tremendously from strength training. Strength training can be very effective in reducing the risk factors for many chronic conditions and diseases and, may actually reverse the disease process. The benefits of strength training include:

- Increased muscle mass and strength
- Restoration of balance and flexibility
- Improved bone density and reduced risk for osteoporosis and related fractures
- Decreased arthritis pain
- Weight maintenance
- Reduced risk for diabetes, heart disease and depression
- Improved stress management
- Improved self-confidence, sleep quality and physical vitality

Supporting Literature for Health Effects

The **Stay Strong, Stay Healthy** program is based, in part, on the results of strength-training studies in older adults conducted at Tufts University in Boston, Massachusetts. The primary researcher has been Dr. Miriam Nelson. Her findings are detailed in “Strong Women Stay Young.”¹ Her studies have included men who have also seen benefits in strength training. Peer-reviewed research provides further evidence that strength training is safe and effective for both men and women at any age.

Aerobic exercise, such as walking, jogging or swimming, has excellent health benefits. It maintains the heart and lungs and increases cardiovascular fitness and endurance. Aerobic activity does not make your muscles strong. Strength training does.

Studies have shown that lifting weights two or three times per week increases strength by building muscle mass and bone density. Strength training, particularly in conjunction with regular aerobic exercise, can also have a profound impact on a person's mental and emotional health.²

Highlighted research on the health benefits of strength training:

Muscle Mass and Strength: It is well documented that the aging process decreases muscle strength and mass. However, resistance exercise has been reported to reverse this process.²⁰ Several studies have reported increased muscle mass and power (or strength) in older adults after performing resistance exercise.^{11, 17, 19}

Restoration of Balance and Flexibility; Reduction of Falls: As people age, poor balance and flexibility contribute to falls and broken bones. These fractures can result in significant disability and in some cases, fatal complications. Strengthening exercises, when done properly and through the full range of motion, increase a person's flexibility and balance, which decreases the likelihood and severity of falls.³ One study in New Zealand showed a 40 percent reduction in falls with simple strength and balance training in women 80 years and older.

Strengthening of Bone: Post-menopausal women can lose 1 to 2 percent of their bone mass annually. Results from current research and a 1994 study conducted at Tufts University, showed that strength training actually restores bone density and reduces the risk for fractures among women aged 50 to 70.^{4,5}

Arthritis Relief: Scientists at Tufts University completed a strength-training program with older men and women with moderate to severe knee osteoarthritis. The results of this sixteen-week program showed that strength training decreased pain by 40 percent, increased muscle strength and general physical performance, improved the clinical signs and symptoms of the disease, and decreased disability. The effectiveness of strength training to ease the pain of osteoarthritis was as potent as medications for many participants.^{6, 7} Similar effects of strength training in patients with rheumatoid arthritis have also been demonstrated.^{8, 9, 10}

Weight Maintenance: Increased body weight due to sedentary behavior is common in the elderly population. Studies conducted on older adults who performed resistance exercise for 10-weeks demonstrated reduced fat mass and increase in muscle mass¹¹ with little or no change in overall body weight. Additionally, there is a consensus from scientists that resistance exercises increases oxidation of fats during rest and can be considered a non-pharmacological intervention for weight maintenance in post-menopausal women, as well as men.¹⁸

Improved Glucose Control: Diabetes is common in American adults. Diabetics have a significantly greater risk for heart and renal disease, and the disease is also the leading cause of blindness in older adults.¹² Fortunately, studies now show that lifestyle changes, such as strength training, have a profound impact on helping older adults manage their diabetes.¹³ In a recent study of Hispanic/Latino men and women conducted at Tufts University, 16 weeks of strength training produced dramatic improvements in glucose control.¹³ Additionally, subjects who strength trained were stronger, gained muscle, lost body fat, had less depression, and felt more self-confident. Seventy percent reduced their medication.^{8, 14}

Cardiovascular Health: Strength training is important for cardiac health, because heart disease risk is lower when the body is leaner. Research from Tufts University¹ found that cardiac patients gained not only strength and flexibility but also aerobic capacity when they did strength training three times a week as part of their rehabilitation program. This and other studies^{21,22} have prompted the American Heart Association to recommend strength training as a way to reduce risk of heart disease and as a therapy for patients in cardiac rehabilitation programs.

Healthy State of Mind: Strength training provides significant improvements in depression. Currently, it is not known if this is because people feel better when they are stronger, or if strength training produces a helpful biochemical change in the brain. It is likely a combination of both changes. When older adults participate in strength training programs, their self-confidence and self-esteem improve, which positively impacts their overall quality of life.⁸

Stress Management: Scientists from Mayo Clinic have shown that exercise can help relieve stress.¹⁶ Exercise, including, resistance exercise increases the release of endorphins, the body's painkillers. Circulating endorphins can reduce stress hormones, and result in lower stress levels.¹⁷

Sleep Improvement: People who exercise regularly enjoy improved sleep quality. They fall asleep more quickly, sleep more deeply, awaken less often, and sleep longer. Recent research has shown improvements in sleep with strength training in older adults.¹⁵

Enhanced Ability to Perform Activities of Daily Living: Disability and a compromised quality of life are among the primary concerns of older individuals. The loss of muscle mass, combined with chronic disease symptoms, can limit their ability to perform daily tasks such as cleaning or shopping, which seriously compromises their independence. Strength training is an extremely powerful antidote to the loss of muscle mass (sarcopenia), balance, and flexibility. Research has shown that increasing muscular strength in the elderly through effective strength training programs is a realistic and safe mechanism by which to maintain functional status and independence.^{8, 14}

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