



# The Five Essential Strength Exercises For Seniors

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When it comes to strength training exercises, we typically recommend 10 to 15 basic Nautilus machines that address all of the major muscle groups. As shown below, a typical strength training program includes exercises for the legs, upper body, arms, midsection and neck.

Recommended Nautilus Exercise	Target Muscle Group
Leg Extension	Quadriceps
Leg Curl	Hamstrings
Hip Adduction	Hip Adductors
Hip Abduction	Hip Abductors
Chest Cross	Pectoralis Major
Super Pullover	Latissimus Dorsi
Lateral Raise	Deltoids
Biceps Curl	Biceps
Triceps Extension	Triceps
Low Back Extension	Erector Spinae
Abdominal Curl	Rectus Abdominis
Neck Extension	Neck Extensors
Neck Flexion	Neck Flexors

These 13 Nautilus exercises are standard fare for our adult program participants, and typically produce excellent results. After two months of training, our members average 2.5 pounds more

muscle, 4.5 pounds less fat, and about 50 percent more muscle strength. Given one minute for each exercise set (about 10 repetitions) and one minute recovery time between exercises, these 13 Nautilus exercises can be comfortably completed in 25 minutes. While this is certainly a reasonable time commitment, it may be too much physical training for previously sedentary seniors or frail elderly individuals.

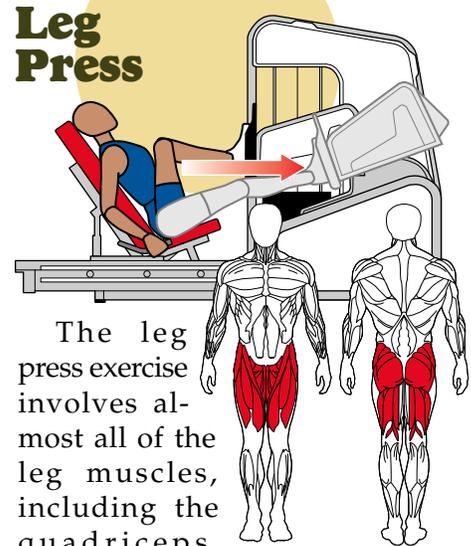
For example, the 90-year old men and women in our nursing home study were not capable of exercising for more than 20 minutes per session, and most of this time was spent transferring from their wheelchairs to the machines.



Due to their exceptionally low level of physical fitness, we reduced the number of Nautilus machines to five making it possible for them to perform each exercise with enough effort to be effective. Of course, with so few exercises we had to select the five most important ones

for improving their overall physical condition. Here are the exercises we chose and our reasons for doing so.

## Leg Press

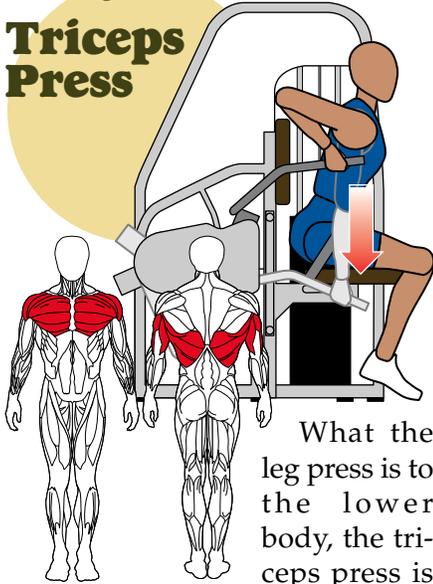


The leg press exercise involves almost all of the leg muscles, including the quadriceps, hamstrings, gluteals, hip adductors, and calves. These muscles are essential for standing up, walking and sitting down, which were major objectives of our strength training study. We wanted these mostly immobile nursing home residents to spend less time in their wheelchairs, and more time ambulating on their own two feet. Obviously, the leg press is the key exercise for strengthening the leg muscles and enabling our patients to attain these objectives.

The leg press is performed by sitting on the seat in a comfortable back-supported position with the

knees bent about 90 degrees and the feet placed evenly on the resistance platform. The resistance platform is pressed forwards by simultaneous contraction of the quadriceps, hamstrings, gluteal, hip adductor and calve muscles, held momentarily in the leg extended position, then returned slowly to the starting position. The forward pressing movement should take about 2 seconds while exhaling and the return movement should take about 4 seconds while inhaling.

## Triceps Press



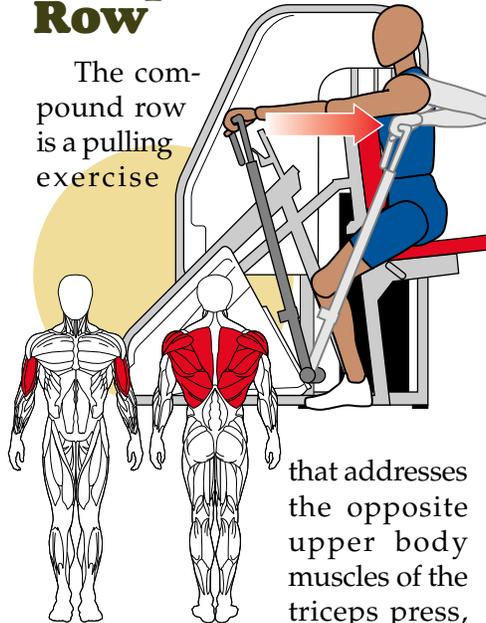
What the leg press is to the lower body, the triceps press is to the upper body. This exercise works the muscles of the chest (pectoralis major), shoulders (deltoids) and arms (triceps). These muscles are used in conjunction with the leg muscles when rising up from a wheelchair or lowering down onto a wheelchair, as well as for a variety of actions involving the upper body.

Proper performance of the triceps press requires sitting tall on the seat with the seatbelt securely fastened and hands gripping the handles directly below the shoulder joint. The seat height should be adjusted so that the elbows are bent approximately 90 degrees. The handles should be pressed downwards until the arms are extended in about 2 seconds while

exhaling. The return movement should take about 4 seconds while inhaling. Body position should not change throughout the exercise.

## Compound Row

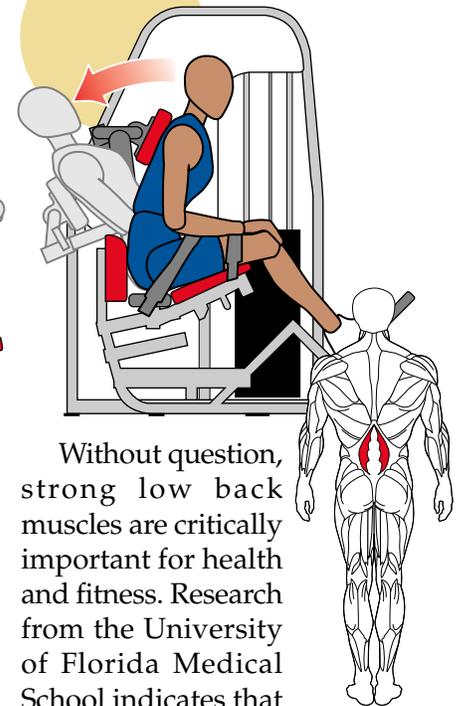
The compound row is a pulling exercise



that addresses the opposite upper body muscles of the triceps press, namely, the upper back (latissimus dorsi, trapezius, rhomboids, teres major) and arms (biceps). Coupling the compound row and triceps press provides balanced upper body muscle development, which is important for posture as well as function. In fact, an intended outcome of the compound row is decreased upper back discomfort and improved breathing through reduced round-shoulderness, problems that are prevalent among nursing home residents.

This exercise is performed with an erect torso, chest firmly supported by the front pad and feet planted on the floor. To best work the retraction muscles of the back, the horizontal handles should be held with an overhand grip at upper chest level. The handles should be pulled backwards to the chest, held momentarily, and returned slowly to the starting position. The pulling movement should take 2 seconds while exhaling and the return movement should take 4 seconds while inhaling.

## Low Back Extension



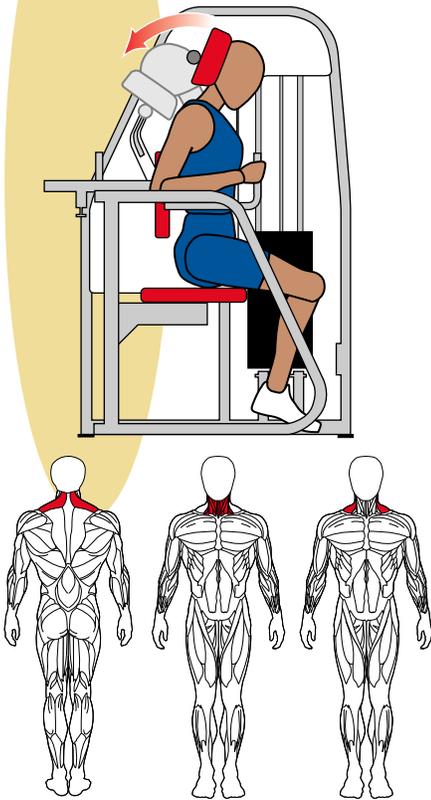
Without question, strong low back muscles are critically important for health and fitness. Research from the University of Florida Medical School indicates that weak low back muscles may be responsible for up to 80 percent of the low back problems in the United States. And since four out of five Americans will experience low back pain, it certainly makes sense to strengthen these essential muscles. The low back extension targets the erector spinae muscles that basically control the movements of the lumbar spine. Our primary purpose for including this exercise is to decrease discomfort and increase functionality in older adults who typically have weak low back muscles.

Proper performance of the low back extension requires that the hip joint be stabilized and that the erector spinae muscles be exercised through the full range of trunk movement. This necessitates sitting securely in the low back machine with both seatbelts snugly fastened. The arms should be folded on the chest, the head held in a neutral position, and the feet placed squarely on the platform. The seat should be adjusted so that the resistance pad contacts the

thickest part of the upper back. The backward movement should take about 2 seconds while exhaling and the return movement should take about 4 seconds while inhaling.

## Neck Extension

The neck extensor muscles are responsible for holding the head erect all day long, a relatively demanding task considering that the head may weigh about 15 pounds.



As these muscles become weaker, gravity pulls the head downward to the point where many seniors are actually unable to lift their chin off their chest for more than a moment. Of course, this makes it difficult to eat, drink, breathe, speak, look forward and function normally. Our main objective in this exercise is to make the neck muscles strong enough to hold the head up, thereby decreasing or eliminating discomfort in this sensitive area of the body. The neck extension exercise activates the upper

trapezius and other neck extensor muscles.

To work the neck extensor muscles properly, the seat should be adjusted so that the back of the head fits comfortably into the opening of the resistance pad. Grasping the handles for support, the neck should be extended backward slowly (about 2 seconds) while exhaling. After a momentary pause, the head should be returned to the starting position (about 4 seconds) while inhaling. The body should remain almost motionless throughout this exercise, the only movement occurring in the neck and head.

Although there are certainly other exercises that could be performed for more comprehensive muscle conditioning, these five exercises have proven to be most beneficial, especially for older individuals or those who are just starting a strength training program. Basically, the leg press and triceps press are the most relevant exercises for standing up and sitting down, as well as for general ambulation and activities involving the upper body. Of course, the compound row also enhances upper body strength and function, in addition to improving posture and reducing the discomfort associated with rounded shoulders. The low back extension and neck extension are key exercises for the most critical (and frequently painful) areas of the body, namely the low back and neck.

## Summary

Given one set of each exercise, the total time necessary to complete this basic strength training program is only 10 minutes. It takes about one minute to perform the recommended 8 to 12 repetitions for each exercise and about one minute for recovery between exercises. Control is the name of the game for senior exercisers, so

slow movement speeds and coordinated breathing are essential. Lifting movements should take 2 seconds while exhaling and lowering movements should take 4 seconds while inhaling. For best strength development, training should be done 2 or 3 nonconsecutive days per week. In terms of intensity, the resistance should be heavy enough to fatigue the target muscles within 8 to 12 repetitions. Whenever 12 repetitions can be completed in proper form, the resistance should be increased by a small amount (1 to 5 pounds).

The elderly men and women in our nursing home study performed these five exercises twice a week for a period of 14 weeks with remarkable results. They added 4 pounds of muscle, lost 3 pounds of fat, increased their leg strength by 80 percent, increased their upper body strength by 40 percent, and improved their functional independence measure by 14 percent (one percent per week). Just as important, they experienced much less discomfort in their lower back, upper back and neck areas, spent much less time in wheelchairs, and in one case even left the nursing facility to live at home again. Without question, these are five functional exercises that can provide a safe, effective and efficient strength training program for seniors.

