

ORGANIZATION NEWS

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Five Key Exercises for Upper Body Strength: A Guide for Persons With Paraplegia



Regular structured exercise should be part of everyone's daily routine in order to maintain fitness and minimize the risk of long-term health complications. For persons with spinal cord injury (SCI), it is important to maintain sufficient strength of the arm and shoulder muscles in order to safely and effectively perform activities of daily living, maintain bone health, burn calories, and reduce stress on muscles and joints. The exercises shown below are designed to strengthen the upper extremities of persons with SCI who use manual wheelchairs for mobility.

General guidelines

- Exercises can be performed in a gym using an adjustable cable machine, or at home using elastic resistance bands (bands can be attached to any fixed object such as a door handle or bed post).
- Individuals without active movement in the legs may have impaired circulation. A proper warm-up and cool-down consisting of 5 minutes of light activity is important to optimize circulation and maintain a normal blood pressure.
- Complete 8 to 10 repetitions for each exercise and repeat 3 times for a total of 3 sets.
- Rest for 60 to 90 seconds between each set.
- All exercises should be performed 2 to 3 days per week on nonconsecutive days.
- Breathing is important during exercise. Individuals should be aware of breathing continuously while pushing or pulling during any resistance exercise.

Exercise safety considerations

Anyone with an SCI should first seek medical advice to ensure that it is safe to begin an exercise program, especially for those who have not exercised in the past 6 months. This information is not meant to replace the advice from a medical professional.

- Ensure that your wheelchair is positioned in a safe and stable place and locked while performing each exercise.
- Begin all exercises slowly to ensure stability and sufficient resistance provided by the band.
- Make sure the resistance band is securely fastened to its location, and never release a band while under tension. This can cause the band to snap back toward the user and may result in injury.
- Inspect bands and handles before every use. Check for cuts, nicks, scratches, cracks, punctures, discoloration, or anything that may indicate weakness in the band. If any flaws are

discovered, discard the band immediately. Do not attempt to repair a damaged band.

- Never stretch a resistance band over 2.5 times its length.
- Exercise should be stopped immediately if the following signs or symptoms are present: light-headedness, dizziness, extreme shortness of breath, persistent chest pain, nausea, or severe headache.
- Individuals with SCI often have reduced or absent sensation. Skin must be monitored frequently to ensure that no skin damage occurs while exercising.
- The normal physiological response to exercise may be impaired after SCI. Take longer rest breaks between exercises if needed.

Maximizing benefits

To maximize the benefits of upper extremity strength training, it is important to challenge oneself during each workout while still maintaining proper form. Begin with a lighter resistance, then progressively increase the intensity and duration of exercise over time (preferably under the guidance of an exercise professional who specializes in SCI management).

Example: If at the end of your first set of the "Seated Row" you feel that you could have completed more than 8 repetitions while using good form, then increase the number of repetitions to 10 on the next set. Once you are able to complete 3 sets of 10 repetitions with proper form, it is time to increase the resistance.

Special note

Grasping cuffs or other assistive devices may be required for individuals with limited grip strength. For people with less trunk stability and strength, a lumbar roll or a chest strap can be used to provide support, improve posture, and reduce the risk of injury while exercising.

Seated Row



How to perform the exercise: Position yourself in front of a cable machine or elastic resistance band attached at chest level. Reach your arms out over your legs with palms facing down; bend your arms and pull your hands to your chest. Squeeze your shoulder blades together as you pull back. Hold this position for 2 seconds and slowly return to the starting position.

Chest Fly



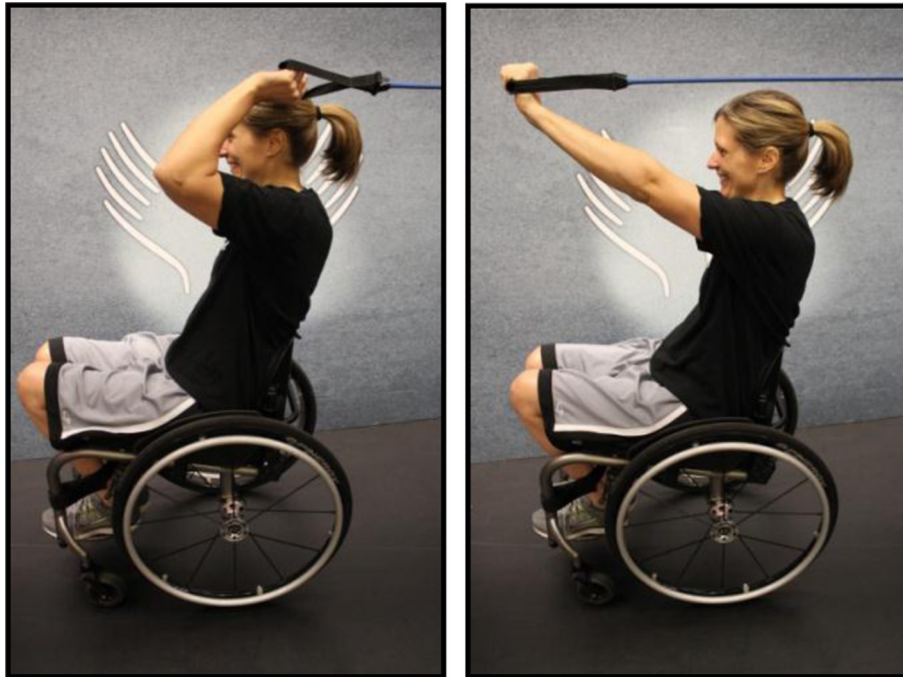
How to perform the exercise: Position yourself slightly to the side and facing away from a cable machine or elastic resistance band with hands at chest level. Begin with the arm slightly bent and out to the side. With thumb facing upward and wrist tight, pull your arm across your body until your hand is in front of your chest. Hold this position for 1 to 2 seconds, before slowly allowing your arm to return to the starting position.

Lat Pulldown



How to perform the exercise: Position yourself in front of a cable machine or elastic resistance band with handles positioned well above shoulder height at an arm's length away. Hold a wide bar or an elastic resistance band with arms reaching upward and hands wider than shoulder width apart. Slowly pull to the top of your chest while squeezing your shoulder blades together. Hold this position for 1 to 2 seconds, before slowly returning your hands back to the starting position.

Triceps Extension



How to perform the exercise: Position yourself facing away from a cable machine or elastic resistance band with handles positioned above shoulder height. Begin by holding the frame or locked wheel of the wheelchair with the nonexercising hand in order to provide stability and balance during the exercise. Hold the elastic band with the opposite hand. Start with the elbow bent and the upper arm parallel to the ground. The elbow should be facing forward. Next, extend the arm until it is straight but be careful not to lock your elbow. As the arm is straightened, make sure the elbow is not flaring outward. Hold the lift for 1 to 2 seconds before slowly returning to the starting position.

Biceps Curl



How to perform the exercise: Begin with arms resting at the sides with the resistance band tubing secured under the rear wheels of the wheelchair by rolling over the band while it is resting on the floor. Hold the resistance band with palms facing upward and elbows next to the trunk. Slowly bend the elbows and lift both hands toward the front of the shoulders. At the maximum lift height, hold the position for 1 to 2 seconds before slowly returning your hands back to the starting position.

Authorship

“Five Key Exercises for Upper Body Strength: A Guide for Persons With Paraplegia” was developed by Nicholas Evans, MHS, Josh Zottnick, MS, and Elizabeth Sasso, DPT, and was supported by the American Congress of Rehabilitation

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