



Scapular Winging (Serratus Anterior Palsy, Long Thoracic Nerve Injury)

Exercises:
10 seconds
10 times
1 time per day

DESCRIPTION

Scapular winging is an uncommon nerve condition that causes pain and sometimes weakness in the shoulder. It involves injury to the long thoracic nerve in the back near the shoulder blade. The long thoracic nerve runs from the neck along the chest wall to the serratus anterior muscle. This nerve can be stretched as the result of a fall on the shoulder while the neck is bent toward the other shoulder, it can be the result of repetitive injury, or it may occur without injury; sometimes it is associated with a viral illness. Injury to this nerve results in weakness of the serratus anterior muscle, causing the shoulder blade (scapula) to pull away from the chest wall with attempted shoulder movement, called *winging*. The scapula is the base from which the shoulder functions. With winging, the shoulder works off a weak base, making shoulder function weak as well.

COMMON SIGNS AND SYMPTOMS

- Pain and discomfort, usually a burning or dull ache, that is poorly localized, often in the back of the shoulder or shoulder blade
- Heaviness or fatigue of the arm
- Loss of power in the shoulder
- Difficulty raising the arm above shoulder level
- Pain in the back when sitting in a chair with a high back as a result of the scapula hitting the back of the chair
- A bump in the back of the shoulder at the scapula that is more obvious when trying to do push-ups or when reaching forward overhead

CAUSES

- Viral illness
- Repetitive stretch injury
- Falling on the shoulder with the head and neck stretched away from the shoulder

FACTORS THAT INCREASE RISK

- Contact sports
- Sports that require overhead throwing-type activities, such as baseball, volleyball, and tennis
- Poor physical conditioning (strength, flexibility)

PREVENTIVE MEASURES

- Appropriately warm up and stretch before practice and competition.
- Maintain appropriate conditioning that includes shoulder flexibility, muscle strength, and endurance training.

EXPECTED OUTCOME

Recovery from scapular winging is usually complete and spontaneous within 18 months. Surgery is rarely necessary.

POSSIBLE COMPLICATIONS

- Permanent weakness of the shoulder, particularly in lifting power and when working with the arm overhead
- Persistent pain in the shoulder
- Stiffness of the shoulder
- Increasing weakness of the extremity
- Disability and inability to compete

GENERAL TREATMENT CONSIDERATIONS

Initial treatment consists of rest from the offending activity and nonsteroidal antiinflammatory medications to reduce inflammation and pain. The nerve usually spontaneously recovers, although this may take from 12 to 24 months. Performing shoulder range of motion exercises while waiting for nerve recovery is of paramount importance. Referral to a physical therapist or an athletic trainer may be recommended for further treatment, including ultrasound and other modalities. If this conservative treatment is not successful, surgery may be necessary to replace the lost function of the serratus anterior muscle with the function of another muscle. Such surgery is considered a salvage operation; it is not meant to allow the athlete to return to sports but to allow pain-free activities of daily living.

MEDICATION

- Nonsteroidal antiinflammatory medications, such as aspirin and ibuprofen (do not take for 7 days before surgery), or other minor pain relievers, such as acetaminophen, are often recommended. Take these as directed by your physician, and contact your doctor immediately if any bleeding, stomach upset, or signs of an allergic reaction occur.
- Pain relievers may be prescribed as necessary, usually only after surgery. Use these only as directed, and take only as much as you need.

HEAT AND COLD

- Cold is used to relieve pain and reduce inflammation for acute and chronic cases. It should be applied for 10 to 15 minutes every 2 to 3 hours as needed and immediately after any activity that aggravates your symptoms. Use ice packs or an ice massage.

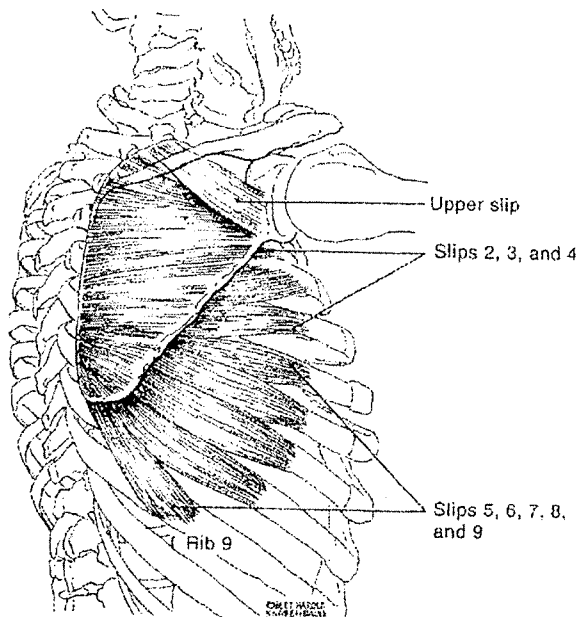


FIGURE 1 From Rockwood CA, Jr., Matsen FA, III: *The shoulder*, ed 2, Philadelphia, 1998, W.B. Saunders, p 136.

- Heat may be used before performing stretching and strengthening activities prescribed by your physician, physical therapist, or athletic trainer. Use a heat pack or a warm soak.

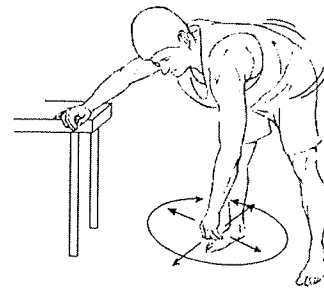
WHEN TO CALL YOUR DOCTOR

- Symptoms get worse or do not improve in 6 weeks despite treatment.
- New, unexplained symptoms develop. Drugs used in treatment may produce side effects.

RANGE OF MOTION AND STRETCHING EXERCISES
Scapular Winging

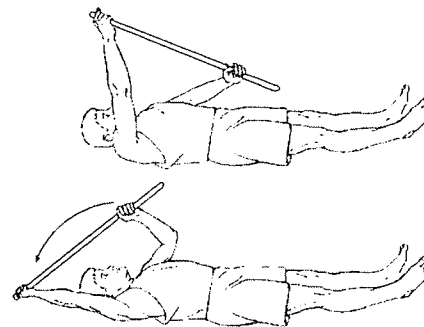
These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. Please remember:

- Flexible tissue is more tolerant of the stresses placed on it.
- A *gentle* stretching sensation should be felt.



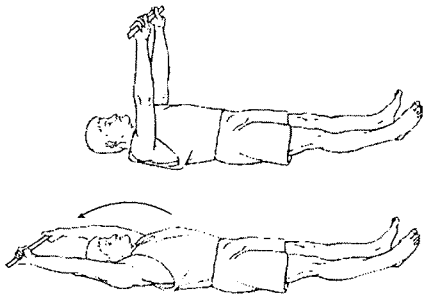
RANGE OF MOTION • Shoulder Pendulum

1. Lean forward at the waist, letting your weak arm hang freely. Support yourself by placing your opposite hand on a chair, table, or counter as shown.
2. Sway your *whole body* slowly forward and back. This will cause your arm to move. Let your arm hang freely, and do not tense it up.
3. Repeat the motion above, swaying side to side and moving in circular patterns, clockwise and counter-clockwise.
4. Do ___ repetitions in each direction.
5. Repeat this exercise ___ times, ___ times per day.



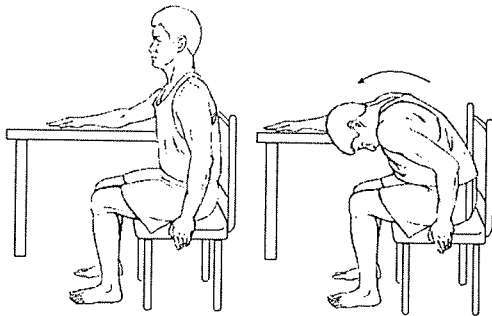
STRETCH • Shoulder Flexion, Single Arm

1. Lie on your back and grasp the bottom of a stick, handle of an umbrella, or blade of a golf club in the hand of your weak arm as shown.
2. Using the stick, raise your arm overhead as shown, until you feel a *gentle* stretch. Lead with your thumb in a "thumbs up" position.
3. Hold each repetition for ___ seconds.
4. Repeat this exercise ___ times, ___ times per day.



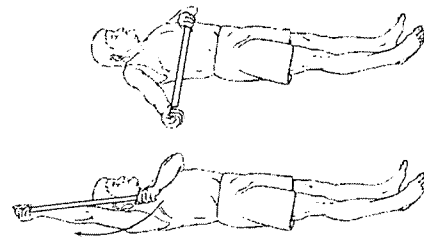
STRETCH • Shoulder Flexion, Double Arm

1. Lie on your back holding a stick in both hands, keeping your hands shoulder width apart.
2. Raise both hands over your head, until you feel a *gentle* stretch.
3. Hold each repetition for ____ seconds.
4. Repeat this exercise ____ times, ____ times per day.



STRETCH • Shoulder Flexion

1. Sit in a chair with your weak arm on a table as shown.
2. Lean forward, *slowly* sliding your arm forward on the table, until you feel a gentle stretch.
3. Hold each repetition for ____ seconds, and return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



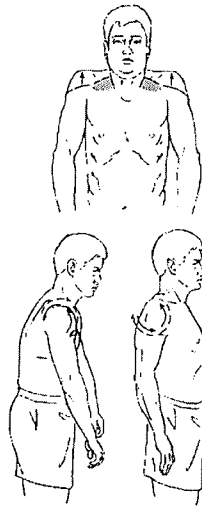
STRETCH • Shoulder Abduction, Single Arm

1. Lie on your back holding a stick, umbrella handle, or golf club in the hand of your weak arm as shown. Your hand should be in the “thumbs up” position.
2. Using the stick, *slowly* push your arm away from your side and as far overhead as you can without pain.
3. Push until you feel a *gentle* stretch, and hold each repetition for ____ seconds.
4. Repeat this exercise ____ times, ____ times per day.

STRENGTHENING EXERCISES
Scapular Winging

These are some of the *initial* exercises you may use to start your rehabilitation program, until you see your physician, physical therapist, or athletic trainer again, or until your symptoms resolve. These exercises not only specifically address the weakness of the serratus anterior but also other muscles that control scapular movement. Please remember:

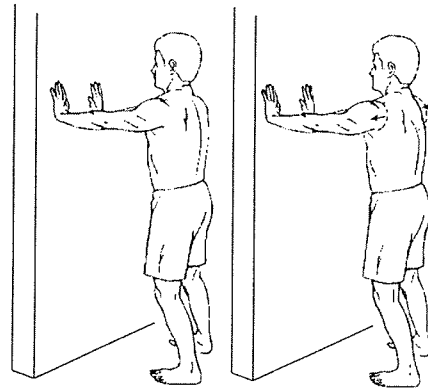
- Strong muscles with good endurance tolerate stress better.
- Do the exercises as *initially* prescribed by your physician, physical therapist, or athletic trainer. Progress slowly with each exercise under their guidance, gradually increasing the number of repetitions and weight used.



STRENGTH • Scapular Elevation, Shrugs

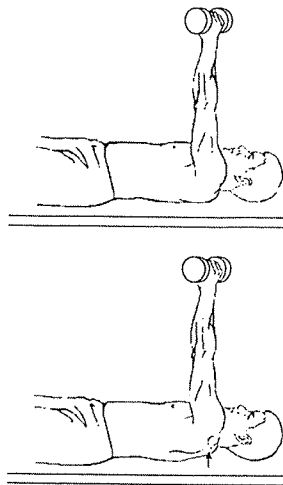
1. Stand erect, using good posture, with your arms at your sides.
2. Gently shrug your shoulders up and back toward your ears.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.

You may perform this exercise with a ____ pound weight in each hand if authorized by your physician, physical therapist, or athletic trainer. Avoid standing in a slouched position with poor posture by using this technique intermittently throughout the day.



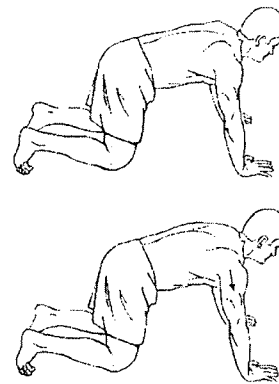
STRENGTH • Scapular Protraction

1. Stand with your hand against a wall as shown.
2. Keep your elbows straight and push down with your hands, raising the back of your shoulders away from the wall as shown. The farther away from the wall you stand, the harder the exercise will be.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



STRENGTH • Scapular Protraction

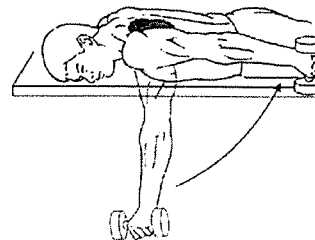
1. Lie on your back with your weak arm straight up in the air as shown. Hold a ____ pound weight in your hand.
2. Push your hand up toward the ceiling, keeping your elbow straight and raising your shoulder off the floor.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



STRENGTH • Scapular Protraction in Quadruped

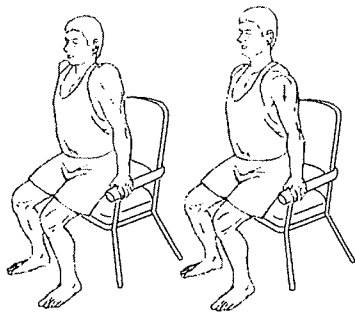
1. Position yourself on your hands and knees as shown.
2. Keep your elbows straight and push down with your hands, raising the back of your shoulders up as shown.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.

This exercise may be made harder by assuming a push-up position. Before trying this variation, check with your physician, physical therapist, or athletic trainer.



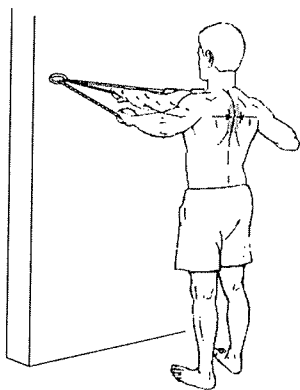
STRENGTH • Shoulder Extension

1. Lie on your stomach with your weak arm off the edge of a bed.
2. Holding a ____ pound weight in your hand, *slowly* raise your arm up and back, toward the ceiling.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



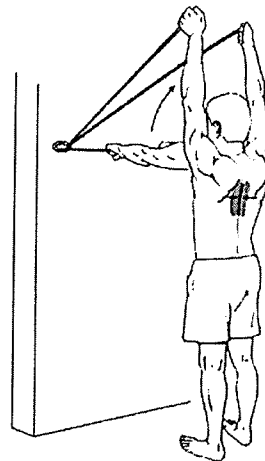
STRENGTH • Shoulder Depression

1. Support yourself as shown in an armchair. Your elbows should be straight, and your feet should be flat on the floor.
2. Push your shoulders downward. *Do not bend your elbows.* Use your legs to support your weight as needed.
3. Hold this position for ____ seconds, and *slowly* return to the starting position.
4. Repeat this exercise ____ times, ____ times per day.



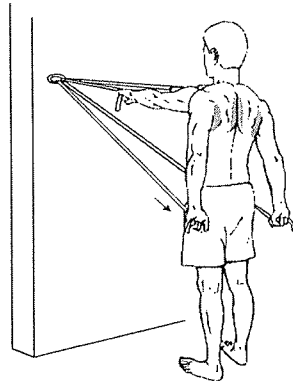
STRENGTH • Scapular Retraction

1. Anchor a rubber band/tubing to a stable, fixed object.
2. Hold one end of the band/tubing in each hand with your arms straight out in front of you.
3. Squeeze your shoulder blades together, and pull your arms back as shown. Your hands should be level with your shoulders when you finish. Do not let your elbows go behind your body.
4. Hold this position for ____ seconds, and *slowly* return to the starting position.
5. Repeat this exercise ____ times, ____ times per day.



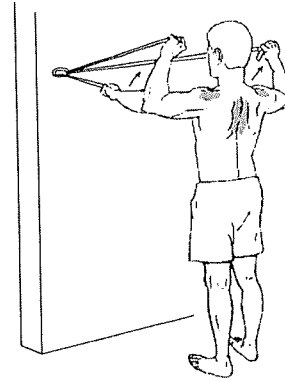
STRENGTH • Scapular Retraction and Elevation

1. Hold one end of a rubber band/tubing in each hand. Your elbows should be at shoulder height and bent 90 degrees.
2. Squeeze your shoulder blades together.
3. Keeping both arms straight, raise them both overhead, leading with your thumbs in a “thumbs up” position.
4. Hold this position for ____ seconds, and *slowly* return to the starting position.
5. Repeat this exercise ____ times, ____ times per day.



**STRENGTH • Scapular Retraction/
Extension**

1. Anchor a rubber band/tubing around a stable object, such as a stair post, or around the knob of a closed door.
2. Stand holding the rubber band/tubing in front of you with your arms extended as shown.
3. Squeeze your shoulder blades together, and pull your arms down and backward as shown. *Do not pull your arms past the midline of your body.*
4. Hold this position for ____ seconds, and *slowly* return to the starting position.
5. Repeat this exercise ____ times, ____ times per day.



STRENGTH • Shoulder, External Rotation

1. Anchor a rubber band/tubing around a stable object, such as a stair post, or around the knob of a closed door.
2. Stand holding the rubber band/tubing in front of you with your arms extended as shown.
3. Squeeze your shoulder blades together, and pull your arms back as shown, bending your elbows. Your fists should end at shoulder height and close to your body.
4. Hold this position for ____ seconds, and *slowly* return to the starting position.
5. Repeat this exercise ____ times, ____ times per day.