FUNCTIONAL DISORDERS:
Frozen Shoulder and Thoracic Outlet Syndrome

Frozen shoulder (adhesive capsulitis) and thoracic outlet syndrome are most often functional, so they can be prevented and eliminated with Clinical Somatics exercises. You should work with these conditions in a similar way, addressing the entire pattern of tension in the core of the body that has led to the limited movement in the shoulder or the compression of the thoracic outlet.

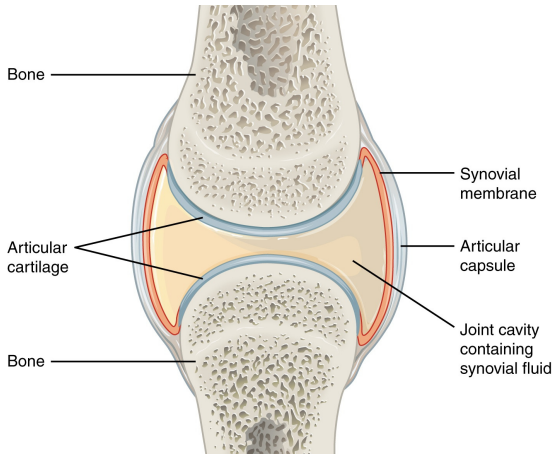
FROZEN SHOULDER (ADHESIVE CAPSULITIS)

What is frozen shoulder?

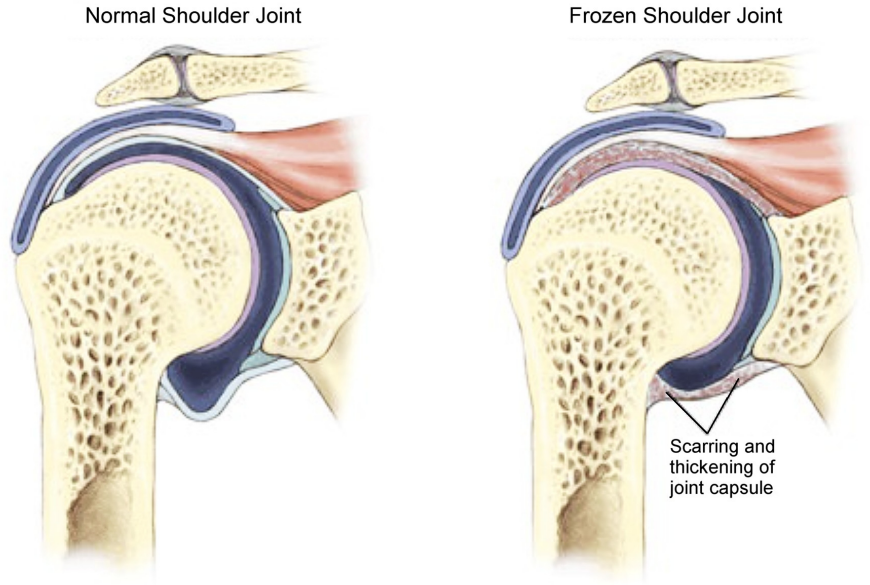
Adhesive capsulitis is more commonly known as frozen shoulder because the condition involves a gradual "freezing" of the glenohumeral joint (shoulder joint). Over a period of weeks or months, the joint becomes painful and immobile. Initial onset to full recovery can take several years. But with proper treatment, most people regain mobility and recover from this painful condition without surgery.

What is a joint capsule?

Every synovial joint in our body is protected by a joint capsule. The outer layer, the articular capsule, is made of dense connective tissue. Underneath the articular capsule lies the synovial membrane, which encases the synovial fluid; these three elements make up the joint capsule. Inside the capsule, cartilage protects the surfaces of the bones that articulate in the joint.



In adhesive capsulitis, the joint capsule of the glenohumeral (shoulder) joint gradually becomes thicker and tighter, restricting movement and causing pain. There is a cycle of reduced mobility, inflammation, pain, formation of scar tissue, and tightening and thickening of the joint capsule that makes the condition continue to worsen. There can also be a decreased amount of synovial fluid present in the joint capsule, making movement more difficult. Abduction (moving the arm out and up to the side, away from the body) and external rotation tend to be particularly limited and painful.



Some conditions that have similar symptoms as frozen shoulder are: osteoarthritis, bursitis, tendinopathies, rotator cuff pathologies, Parsonage Turner syndrome, a locked posterior dislocation, proximal humeral fracture, and active muscle guarding (chronically tight muscles).

The typical stages of frozen shoulder

Frozen shoulder typically progresses in three stages:

Stage 1: Referred to as the Acute, Freezing, or Painful Phase; typically lasts 6 weeks to 9 months. The shoulder joint is painful at the end of ranges of motion, and becomes painful at rest and overnight. Mobility of the joint gradually becomes limited.

Stage 2: Referred to as the Adhesive, Frozen, or Stiffening Phase; typically lasts 4 to 9 months. While pain may begin to subside, the joint continues to become more stiff and immobile.

Stage 3: Referred to as the Resolution, Thawing, or Recovery Phase; typically lasts 5 months to 3.5 years. Shoulder joint gradually regains normal mobility, and pain continues to subside.

What causes frozen shoulder?

Frozen shoulder is often directly related to lack of movement. It typically occurs in people who have had to keep their shoulder immobile after rotator cuff injury, a broken arm, or surgery, and people who have conditions that limit their mobility, like stroke or Parkinson's disease. Reduced movement due to chronic tightness in the shoulder muscles likely contributes to idiopathic frozen shoulder, for which there is no obvious trigger.

Connective tissue adapts to the amount of movement demanded from it, becoming tighter with less movement and looser with more. This adaptation can lead to a vicious cycle: As the joint capsule gets tighter, movement becomes more difficult and sometimes painful, limiting movement further and causing the tissues to tighten even more.

Inflammation plays an important role in developing frozen shoulder as well. Following an injury or surgery, inflammation occurs in the joint as part of the healing process. This causes swelling, pain, and limited movement, and also causes scar tissue to form, making the joint capsule thicker and tighter. Systemic inflammatory conditions, including diabetes and other metabolic conditions, osteoarthritis, thyroid disease, cardiovascular disease, and autoimmune diseases can also increase the risk of developing frozen shoulder.

How to work with frozen shoulder

Research has shown that gentle, natural movement is more effective than physical therapy or stretching in recovering from frozen shoulder. And a small study of frozen shoulder sufferers undergoing elective surgery found that capsular contracture alone could not explain their loss of mobility, and that muscle stiffness or muscle guarding was a major contributing factor to their reduced range of motion.

When working with a student who has frozen shoulder, you must address their entire pattern of tension from their core up through their shoulder. In addition to tight shoulder muscles, tight muscles in their back, waist, and abdomen are likely contributing to the limited range of motion in their shoulder.

If there was no obvious trigger (like injury or surgery) for their frozen shoulder, you should educate your student that chronic muscle tension resulting from repetitive activities may have contributed. They need to become aware of how they're using their body in any repetitive activities that they do, and make changes if necessary in order to facilitate their recovery.

The following exercises will likely be the most helpful in recovering from frozen shoulder:

CEI Level 1
Back Lift
Arch & Curl
Side Curl
Diagonal Curl
Washcloth
Proprioceptive Exercise 2

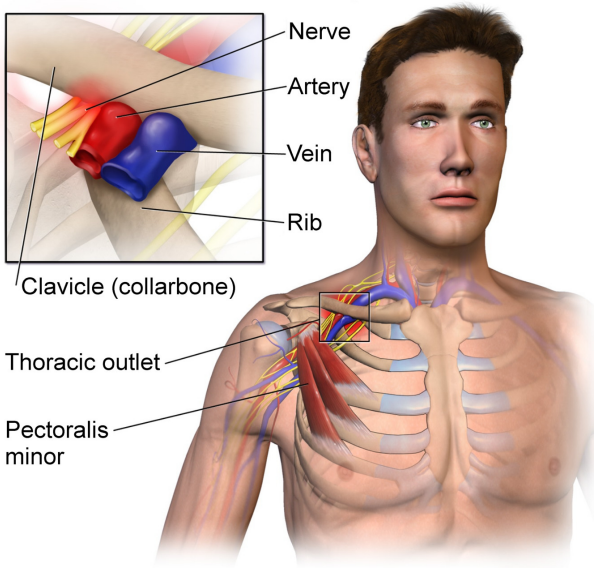
CEI Level 2
One-sided Arch & Curl
Diagonal Arch & Curl
Flowering Arch & Curl
Scapula Scoops Part 1
Scapula Scoops Part 2
Proprioceptive Exercise 3
Proprioceptive Exercise 4

CEI Level 3
Shoulder Directions
Shoulder, Elbow, Wrist & Hand Releases
Head Lifts
Steeple Movement
Seated Twist

THORACIC OUTLET SYNDROME

What is thoracic outlet syndrome?

The thoracic outlet is a small space between the clavicle (collarbone) and the first rib (see image below). A bundle of nerves and blood vessels passes through the thoracic outlet and provides sensation, motor control, and circulation of blood to the chest, shoulder, arm, and hand.



The network of nerves that passes through the thoracic outlet is called the brachial plexus. The lower four cervical nerves and the first thoracic nerve emerge from the spinal cord, pass in between the scalene muscles in the neck, through the thoracic outlet, under the pectoralis minor, into the armpit, and down the arm. If the brachial plexus is compressed at any point along its path, it may result in the symptoms of thoracic outlet syndrome.

The symptoms of thoracic outlet syndrome include:

- Pain in the neck, shoulder, or arm
- Numbness or tingling in the arm or hand
- Weakness or fatigue in the arm or hand
- Lack of color in the arm or hand
- Cold fingers, hand, or arm
- Weak or no pulse in the affected arm
- Swelling in the arm

What causes thoracic outlet syndrome?

Thoracic outlet syndrome can be caused by a structural issue, such as an extra rib, the growth of a tumor, or an injury to the area. But most often, thoracic outlet syndrome is a functional issue, caused by poor posture or chronic muscle tension in the neck, shoulder, and chest.

The nerves that form the brachial plexus emerge from the spinal cord in the neck. If someone has forward head posture, their neck muscles will be tight and their cervical vertebrae will be compressed. This compression can lead to the nerves being impinged as they exit the spinal cord, and cause symptoms of thoracic outlet syndrome.

The brachial plexus then passes in between the anterior scalene muscle and the middle scalene muscle. The scalenes flex the head and neck forward, bend the head and neck to the side, rotate the head and neck to the side, and elevate the ribs during inhalation. If the scalenes are tight, or if someone has forward head posture or chronic tension in their neck, their brachial plexus may be compressed as it passes in between the scalenes.

The pectoralis minor is the muscle most commonly implicated in thoracic outlet syndrome. However, before the brachial plexus reaches the pectoralis minor, it passes through the thoracic outlet. The clavicular fibers of the pectoralis major attach to the clavicle, as does the deltoid muscle. Chronic tightness in these two muscles creates a downward pull on the clavicle, compressing the brachial plexus.

The brachial plexus then passes under the pectoralis minor. If this muscle is tight, it will compress the brachial plexus, and cause symptoms of thoracic outlet syndrome.

Thoracic outlet syndrome can occur when people have had an injury like a broken arm and must keep their arm in a sling for a long period of time. The muscles in the neck, shoulders, and chest become tight due to both lack of use and instinctive protecting of the injured area.

Thoracic outlet syndrome can also be caused by repetitive daily activities, like:

- Working at a computer
- Spending long periods of time looking downward at a mobile device
- Playing sports such as baseball, swimming, and gymnastics
- Weightlifting
- Playing a musical instrument
- Holding a baby for long periods of time
- Carrying a heavy bag

How to work with thoracic outlet syndrome

When working with a student who has thoracic outlet syndrome, you must address their entire pattern of tension from their core up through their shoulder. Their abdominal and waist muscles are likely tight, pulling one side of their rib cage forward and down. Their pectorals and neck muscles will be tight on their affected side, and their shoulder will be internally (medially) rotated.

If there was no obvious trigger (like injury or surgery) for their thoracic outlet syndrome, you should educate your student that chronic muscle tension resulting from repetitive activities may have contributed. They need to become aware of how they're using their body in any repetitive activities that they do, and make changes if necessary in order to facilitate their recovery. Taking a break from intense activities like weightlifting will be helpful.

I've starred the Diagonal Curl and Scapula Scoops Part 2 because they are so important. If you have a student with thoracic outlet syndrome, teach them these two exercises in your first session (in addition to the Arch & Flatten).

CEI Level 1
Arch & Flatten
Back Lift
Arch & Curl
Side Curl
*Diagonal Curl
Washcloth
Proprioceptive Exercise 1
Proprioceptive Exercise 2

CEI Level 2
One-sided Arch & Curl
Diagonal Arch & Curl
Flowering Arch & Curl
Scapula Scoops Part 1
*Scapula Scoops Part 2: Do the first part (hugging beach ball and releasing); you can skip the second part if you want to (hugging beach ball and turning)
Proprioceptive Exercise 3
Proprioceptive Exercise 4

CEI Level 3
Shoulder Directions
Shoulder, Elbow, Wrist & Hand Releases
Head Lifts