

Managing the

# Frozen Shoulder



A self-care guide for those suffering from frozen shoulder

William E. Morgan, DC  
Sarah Potthoff, DC

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## Disclaimer

No book is a replacement for a competent doctor. This book is not intended to be a substitute for the advice of your doctor, but rather a supplement to your patient-doctor relationship. This book is not intended to provide self-diagnosis and treatment of a frozen shoulder. It is intended to help educate patients who have been diagnosed with a frozen shoulder and would like to know more about this condition. The risks of self-care include delaying timely and appropriate professional care and possible risk of permanent impairment.

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## Introduction

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Frozen shoulders are painful and frustrating. The pain associated with frozen shoulders tends to provoke those with this condition to be overprotective and limit the use of their shoulder. This can lead to a downward spiraling of pain → restricted motion → pain → more restricted motion → more pain → and so on. The downward spiral is prevented through understanding the condition and a purposeful attempt of maintaining motion through particular exercises.

If motion exercises alone are not effective, other treatments should be utilized. This ebooklet will discuss the treatment options available to patients with frozen shoulder and will present a program of exercises intended to preserve shoulder motion.

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# What is Frozen Shoulder?

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# What is Frozen Shoulder?



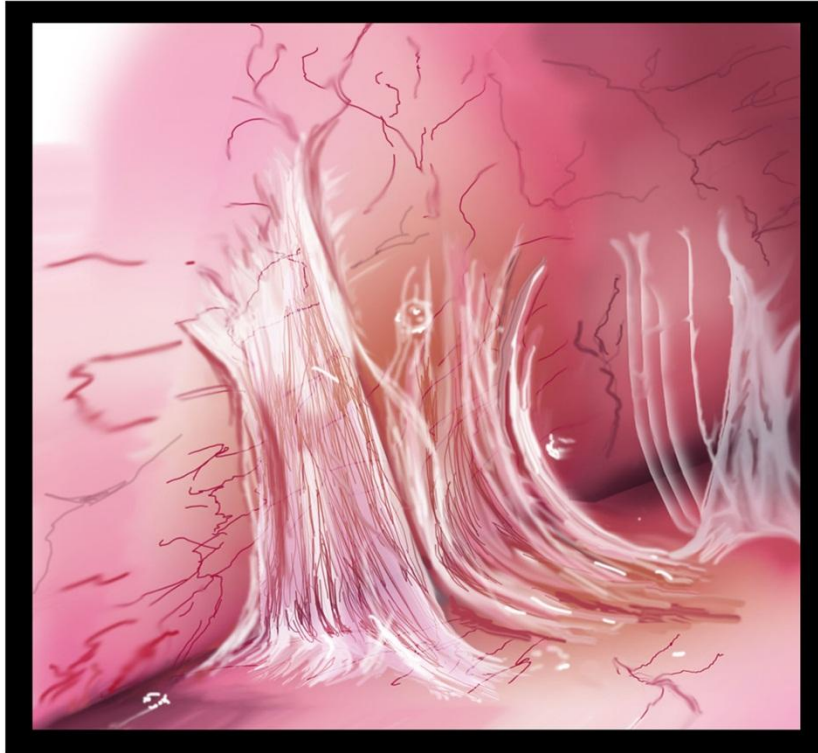
Frozen shoulder is the lay term for the condition known in health care as *Adhesive Capsulitis*. The term *adhesive capsulitis* implies that the shoulder joint capsule has adhesions and inflammation that limits the motion of the shoulder. While this condition is common, its cause is not well understood. We do know, however, that this condition is more common in females than in males, the non-dominate shoulder is more affected than the dominate shoulder, and the prevalence is more common after the age of 40.

It takes between six months and three years to stabilize and regress. Unfortunately, there is often a residual permanent reduction in shoulder motion. This eBooklet will discuss the effects of this condition, the management options, and will provide the reader with information on how to self-manage this malady.

## **Signs and Symptoms of Frozen Shoulder:**

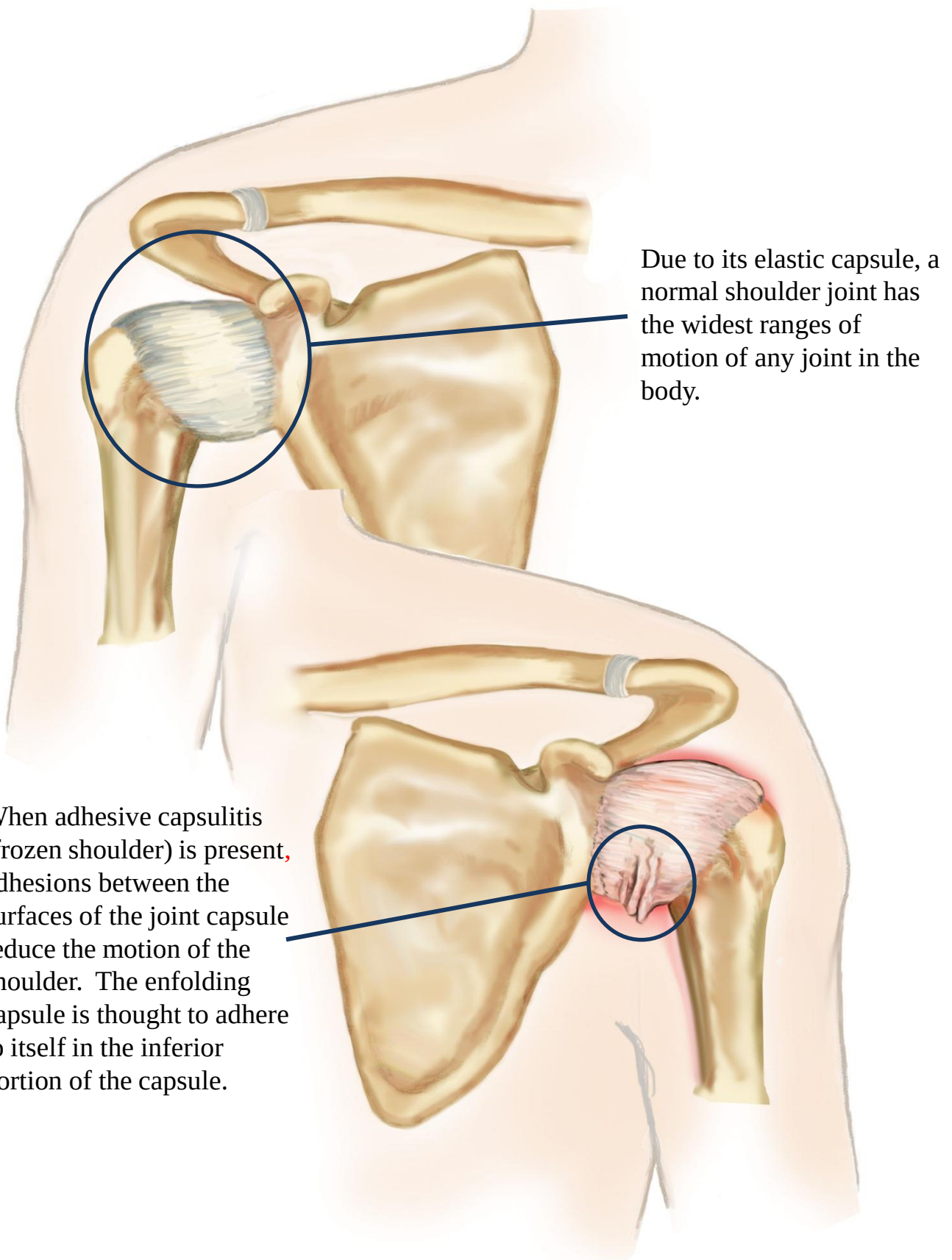
- Decreased shoulder motion
- Reduced arm swing while walking
- Holding the arm in a protective manner near the body
- Stooped rounded shoulders
- Neck and back pain

# What is Frozen Shoulder?



## Adhesions Between Surfaces

Adhesions are fibrotic bands of scar tissue which join the surfaces of two anatomic surfaces. With time, adhesions tend to expand in breadth while they tighten and bind normal motion. The shoulder has a propensity for developing adhesions. If shoulder joint inflammation and fibrotic adhesions combine, the condition we know as frozen shoulder develops.



# Signs and Symptoms of Frozen Shoulder

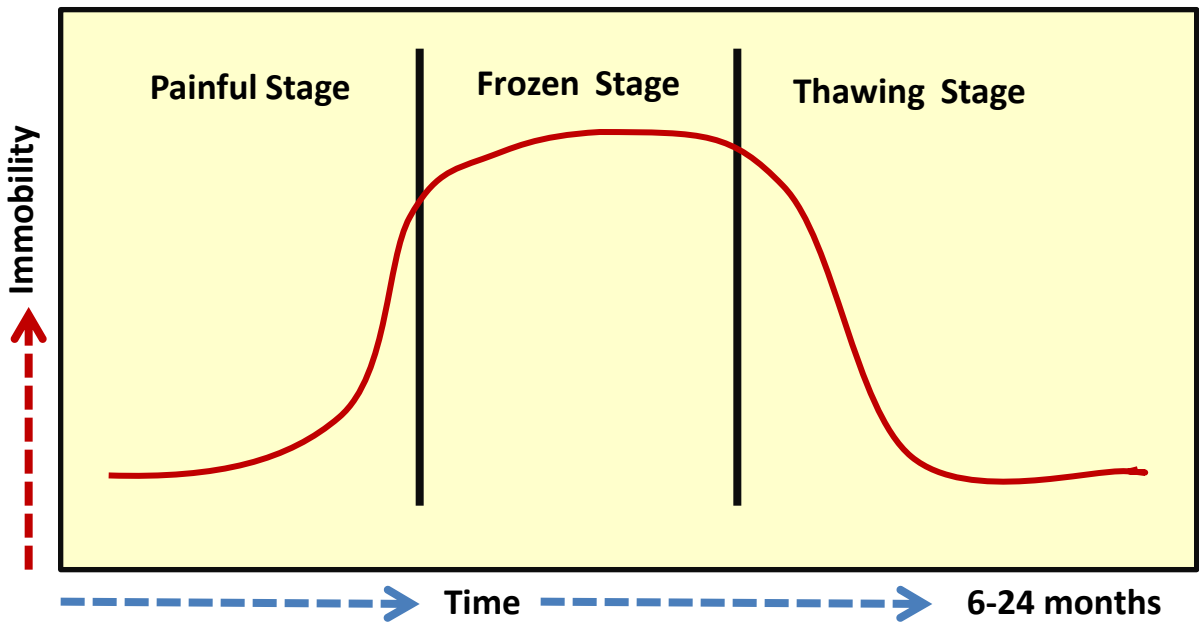
There are several shoulder conditions that cause pain and reduced motion. The diagnosis of frozen shoulder should come from a provider who is well versed in differentiating various shoulder maladies. The primary symptoms of frozen shoulder are pain and stiffness. Pain may be worse at night, and is provoked by laying on the affected shoulder.

As the shoulder loses its motion, even normal activities like dressing, answering the phone, or working will become difficult.

Frozen shoulders have three distinct stages of progression. Each stage typically takes months to progress. The normal progression of frozen shoulder through all three stages is between six months and two years. Without a purposeful effort to restore motion, the effects of a frozen shoulder may become permanent.

| The Three stages of Frozen Shoulder Progression |                                                                                                                                                                          |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Painful Stage                                   | Shoulder pain is the hallmark of this stage. It starts gradually and progressively worsens.                                                                              |
| Frozen Stage                                    | Pain may reduce in this stage, although shoulder stiffness and restriction increase. Shoulder range of motion is dramatically reduced.                                   |
| Thawing Stage                                   | This stage is characterized by spontaneous “thawing.” The motion will gradually increase and the shoulder will be more responsive to stretching exercises and treatment. |

## Timeline for a Frozen Shoulder



The three-phased progression of frozen shoulder tends to progress regardless of treatment interventions. In spite of an almost inevitable progression of this condition, it appears that maintaining motion and mobility throughout the progression of this malady reduces the permanent loss in motion that may result from a bout with a frozen shoulder.

One of the primary treatment concerns with frozen shoulder is managing the patient's frustration and adjusting expectations.. There will be pain and slow progression during the healing process and some patients will have lasting impairment. Healing may be a long slow process fraught with periods of pain and reduced shoulder function.

# What Causes Frozen Shoulder?

The mechanism of what triggers a frozen shoulder is not clearly understood. What we do know, however, are the groups who face the greatest risk of incurring this condition. Frozen shoulder is more common in those over forty, women, and much more prevalent in diabetics and those who have suffered from a stroke, thyroid disease, recent surgery, or Parkinson's disease.

There are two classifications:

1. Primary Frozen Shoulder. This occurs without an identifiable cause.
2. Secondary Frozen Shoulder. This occurs as a result of injury, surgery, or illness.

## Risk Factors

Frozen shoulder affects 2% of Americans. For reasons not well understood, it occurs more often in the non-dominant shoulder, is more prevalent in women, and occurs most often in people between the ages of 40 and 60.

Other known risk factors include the following:

- Diabetes. Frozen shoulder affects 10% to 20% of diabetics, for unknown reasons
- Immobilization of shoulder
- Hyperparathyroidism
- Inflammation/autoimmune reaction
- Parkinson's disease

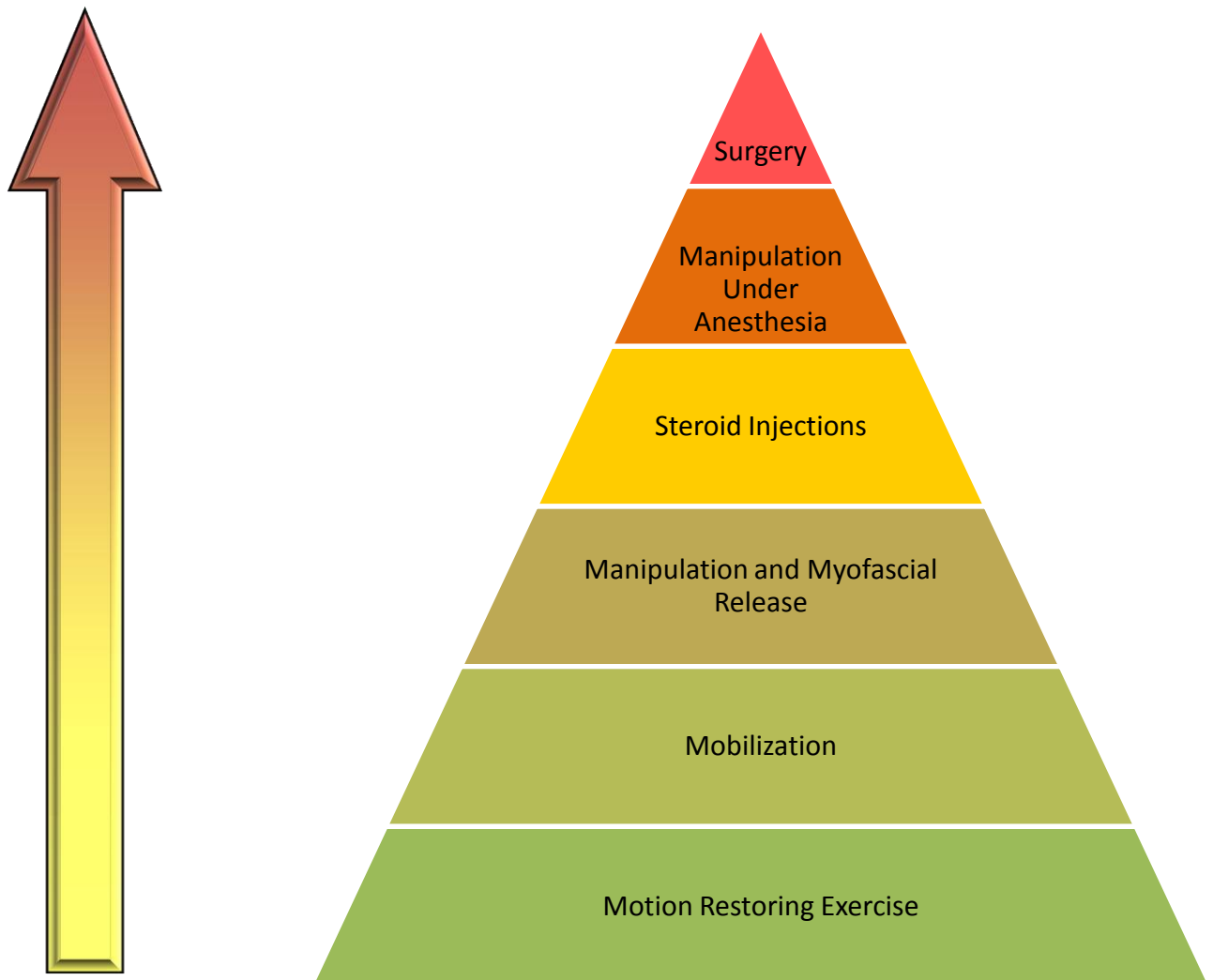
# Treatment Options for Frozen Shoulder

# Hierarchy of Treatment

The most fundamental component of treating a frozen shoulder is movement. Immobility worsens this condition. This is why shoulders are rarely immobilized as part of a treatment plan for injury and motion is introduced early. The most common treatments for frozen shoulders are mobility exercises and anti-inflammatory drugs. Manipulation of the shoulder is also indicated. In resistant cases, injected steroids are utilized. In rare cases, manipulation under anesthesia or surgery may be indicated. Of note, steroid injections have a similar benefit to manipulation–under-anesthesia (MUA) without the risks associated with anesthesia.

This schematic shows the ascending treatment risk. The safest treatment is listed at the base of the pyramid with the high level of complications at the top. Patients should utilize the safest treatment that yields results.

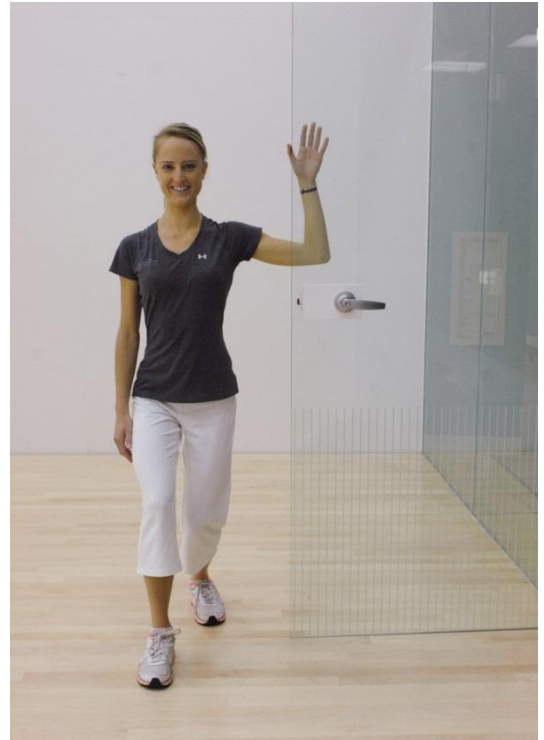
Greatest Risk



Least Risk

# Treatment

The primary treatment for frozen shoulder is stretching. Other treatments include the use of non-steroidal anti-inflammatory drugs (NSAIDs) like ibuprofen or aspirin, corticosteroid injections into the affected shoulder, manipulation, mobilization, friction massage, and therapeutic modalities. In persistent cases, manipulation under anesthesia, or surgery are required to restore shoulder motion.

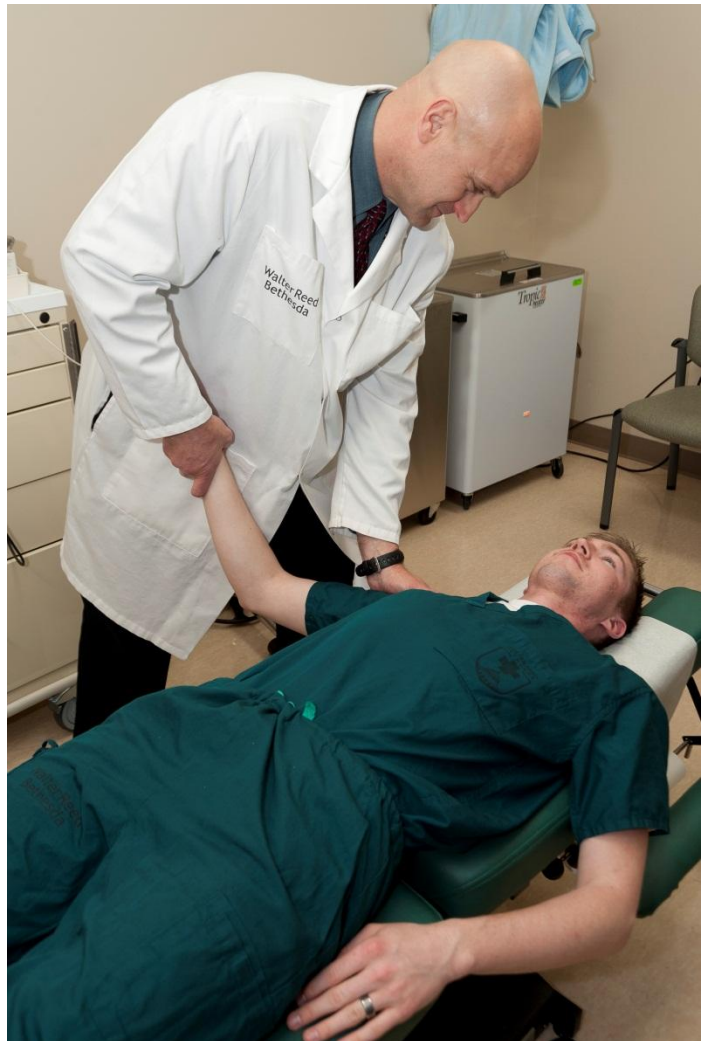


Stretching is the primary treatment for frozen shoulder.

# Shoulder Manipulation

Manual manipulation of the affected shoulder should be performed by a skilled manual practitioner. The goal of the manipulation is to manually break free restrictive adhesions and to restore motion. Manipulation bears the risk of tearing the shoulder joint capsule or causing a disruption of internal structures.

The patient can expect the practitioner (typically a chiropractor or osteopath) to manually move the shoulder in a manner that will open the joint and place tension on the adhesions and contractures. Sometimes quick impulses are utilized to mobilize the restrictions.

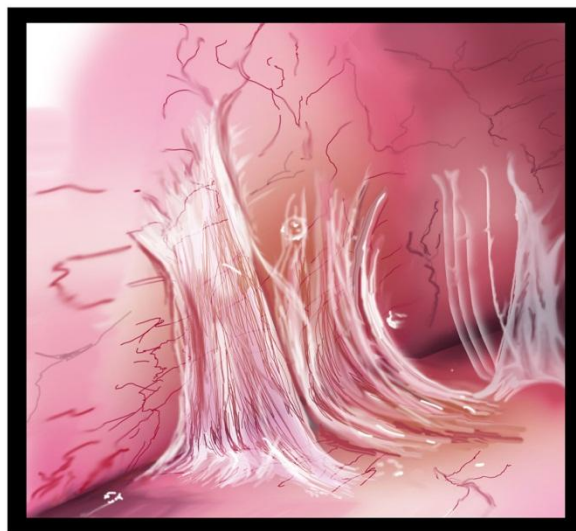


Chiropractic manipulation of shoulder.

## Myofascial Mobilization or “Release”



Myofascial/soft tissue mobilization of a shoulder.



Adhesions bind shoulder motion.  
Myofascial release is stripping massage that attempts to break these adhesions.

Soft tissue manipulation of the shoulder, frequently called myofascial release or soft tissue mobilization, is used to free adhesions that limit motion and create pain. Myofascial release is typically a slow stretching of soft tissues that is performed while applying a sustained pressure to connective tissue of the involved structures.

# Interventional Procedures

In the event that more conservative measures do not work, more intrusive treatments can be employed. These interventions include steroidal injections, manipulation-under-anesthesia (MUA), and surgery. Steroid injections appear to be as effective as MUA but have less of the dangers associated with anesthesia and sedation. Surgery is usually reserved for more resistant cases of adhesive capsulitis.

## Shoulder Manipulation Under Anesthesia



Orthopedic manipulation of shoulder under sedation.

In cases resistant to other treatment, manipulation-under-anesthesia (MUA) may be indicated. In MUA, the patient is sedated to reduce the level of pain and muscle resistance. The orthopedic surgeon manipulates the shoulder to break free the adhesions. An intensive regime of physical therapy is required for a couple weeks following MUA to prevent new adhesions from forming following the manipulation.

### **Contraindications for MUA include:**

- Insulin dependent diabetics
- Those at greater risk for fracture such as the elderly or those with osteoporosis.
- Those with bleeding disorders
- Patients with risks to anesthesia

## Surgery

In cases that are resistant to all other forms of treatment orthopedic surgery may be utilized to remove the restrictive adhesions.

# Exercise

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# Exercise

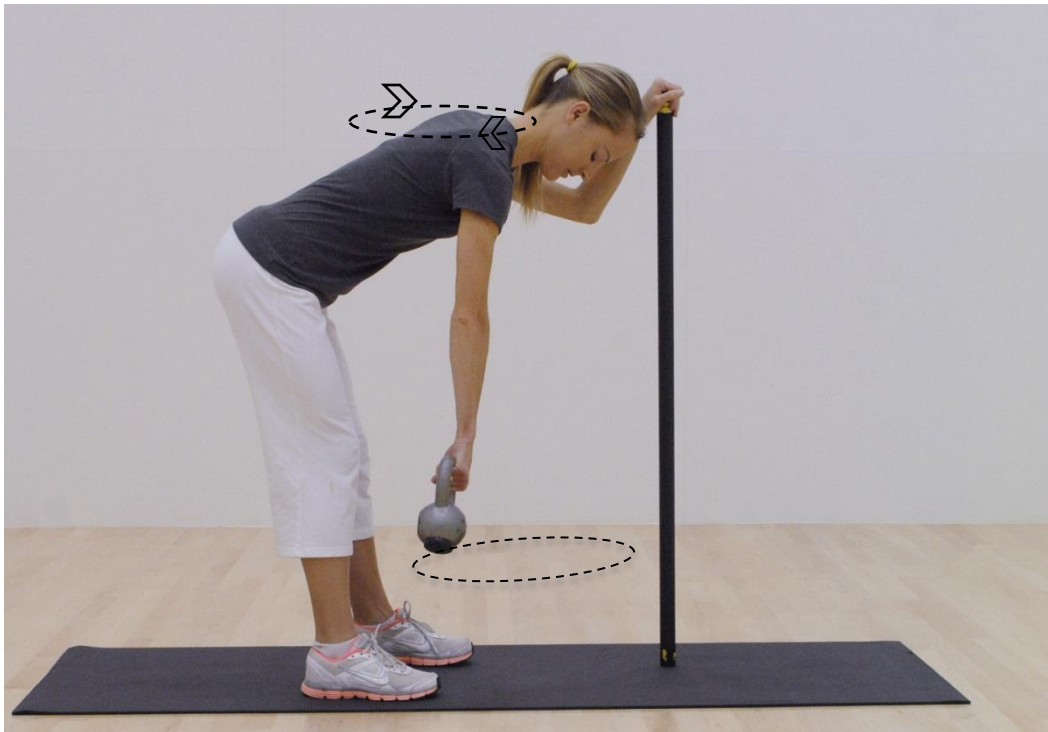
Shoulder motion is the primary treatment for frozen shoulder. It is important to continue to use the arm as much as can be tolerated while healing. If the shoulder is overly protected from motion the condition will worsen.

The application of a hot pack or warm shower prior to performing these exercises, and the application of an ice pack to the shoulder afterward will make the exercises more tolerable. While keeping the shoulder active is good at preventing the progression of this malady, moving the shoulder through all of the planes of motion is required to fully recover. The exercise program that follows is intended to increase motion in all planes of shoulder motion.

Remember that healing from a frozen shoulder will take time, in some cases a lot of time. These exercises need to be done every day, not just the days the gym or the physical therapist's office is open. You will need to push yourself out of the comfort zone to obtain healing.

# Shoulder Pendulum

1. Begin using the weight of your arm without any added weights, gradually incorporating light dumbbells or kettlebells into the routine
2. The frozen shoulder arm follows the body's motion
3. Keep back straight, core (trunk muscles) tight, feet shoulder width apart
4. Support opposite arm to allow the affected arm to hang straight down with full relaxation of that shoulder's muscles
5. Using the motion of your body to create shoulder motion, sway your body
6. Start with small circles, gradually increasing to larger circles
7. Perform 20-25 circles in each direction



## Avoid Injury:

To minimize risk of injury with this exercise, begin with no weight. Additionally, the motion of the arm should be a result of the swaying of the body, not from the muscles within the shoulder. In time, you may add light weights (two to five pounds) such as dumbbells, kettlebells, cans of food, or water bottles.

## Shoulder Flexion (Elevation) Exercise

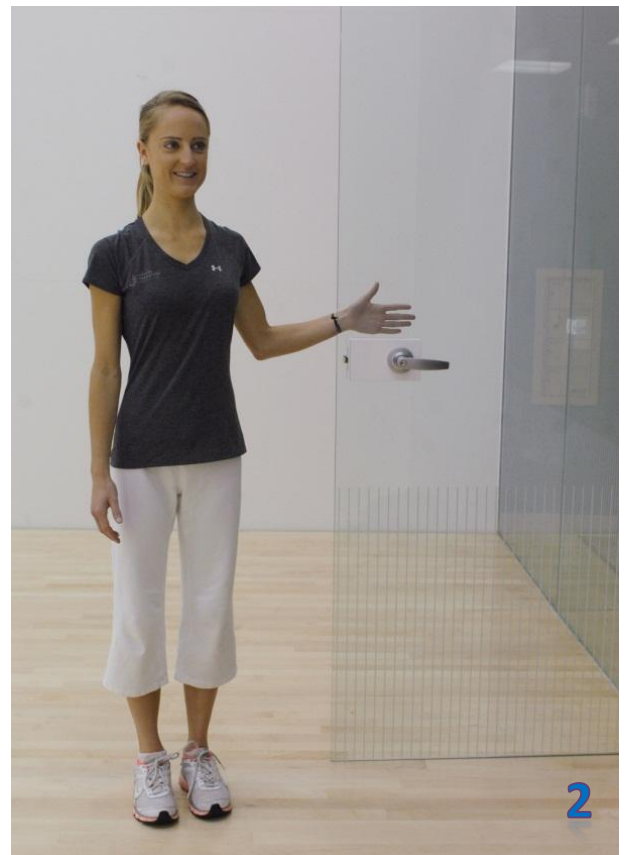
This stretch is designed to improve shoulder elevation. It is performed using a small ball beneath the hand of the affected shoulder.

1. Slide the affected arm up the wall by rolling the ball in your open hand until a comfortable stretch is felt
2. If the affected arm is unable to actively move, assistance can be provided by the unaffected arm. Use caution and move slowly
3. Hold up to 10 seconds and repeat
4. Within the limits of what you can tolerate, attempt 10-15 repetitions
5. However, it is often necessary to start with fewer reps and work up to 10-15



## Anterior Shoulder Stretch

1. Start with your elbow at your side, near your body with your hand contacting a wall or post.
2. Slowly rotate your lower body, keeping your elbow close to your body
3. Hold for 10-30 seconds
4. Perform 5-10 reps as tolerated
5. Stretch within your level of comfortable tolerance



## Advanced Anterior Shoulder Stretch

1. Once you have progressed through the previous exercise, you can try the stretch with your arm at 90°, placing your elbow against the wall
2. Use a staggered stance (lunging with the leg opposite the affected arm in front)
3. Lean forward until you feel a comfortable stretch in the anterior aspect of your shoulder
4. Use the same key points for timing/reps from the previous exercise: Hold for 10-30 seconds, perform 5-10 reps as tolerated



## Internal Rotation - Standing

This exercise should be performed with caution as it can aggravate an inflamed frozen shoulder. The hand of the affected arm holds the towel behind your back, while your other hand grasps the end of the towel in the front. Gently pull with the unaffected (front) arm in a downward and forward direction. The musculature of the affected shoulder should be relaxed and able to slowly follow the upward motion of the towel.



1. When a comfortable stretch is felt, hold the position for 10-30 seconds
2. Your eventual goal is to hold for 60 seconds, working for slightly greater range of motion each time you perform the exercise
3. 5-10 reps or until fatigue

## Internal Rotation – Lying on Side

1. Lie on your side, with the affected shoulder side down
2. If this position causes pain, discontinue this exercise. If discomfort is felt, proceed with caution
3. The affected shoulder should be abducted and flat against the floor. Elbow is bent to 90°, making it perpendicular to the floor.
4. Place the unaffected hand on the affected forearm and apply gentle downward pressure, slowly forcing the forearm to the floor
5. Hold that position – or however far the affected arm can move without pain – for 10-30 seconds.
6. Repeat 5-10 times. Beginners should start slowly



## Cane Exercises

Begin this series of exercises with a rod or broom stick. As you make progress but need a little extra resistance to achieve greater range, you can use a lightly weighted exercise rod.

When you reach the point where you can do 20 repetitions at a certain weight without pain and without feeling a good stretch, increase the weight one pound at a time.

Heavier weight is not always necessary for the exercise to be effective. However, it adds resistance, gradually strengthening the muscles. Furthermore, it adds overpressure at the end of each stretch, which may be necessary to restore full motion in some cases.

## Extension Cane Exercise



1. Standing with feet shoulder width apart, hold the cane behind the body with palms up
2. Slowly extend the cane upward and back until a stretch is felt in the anterior portion of the shoulder
3. Hold for 5-10 seconds
4. Do 10-20 reps
5. Beginners should start with a low number of reps, gradually increasing repetitions

## External Rotation Cane Exercises



1. Hold the cane in front of you, parallel to the floor, with elbows touching your sides, palms up, and hands shoulder width apart.
2. Slowly shift the cane away from your body in a sideways direction, toward the side of the affected shoulder.
3. Keep the cane parallel to the ground and elbows in contact with your sides.
4. Hold for 5-10 seconds
5. 10-20 repetitions

## Advanced Standing Flexion Cane Exercise



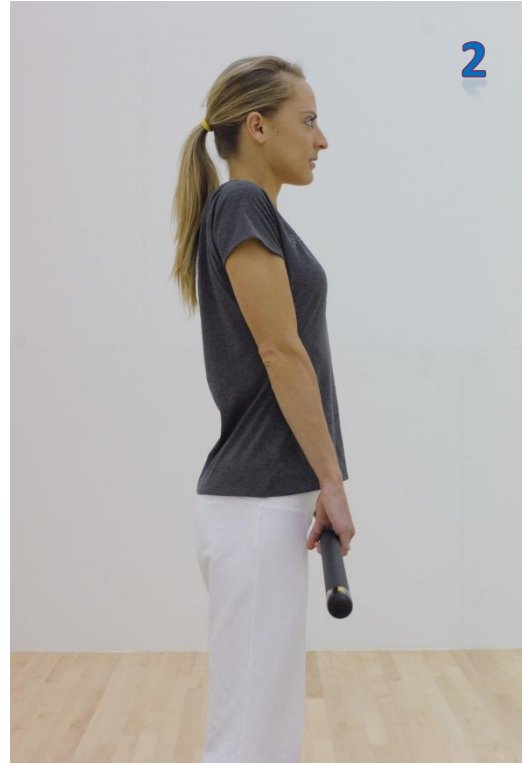
1. Be certain to start with a very light cane or body bar
2. Hold the cane in front of your body at shoulder level, parallel to the ground
3. Slowly raise the cane to above the head, keeping the arms straight, no bend in the elbow if possible
4. Hold for 2-5 seconds and lower the cane slowly
5. 10-20 repetitions

## Internal Rotation Cane Exercise



1. Hold the cane behind your back, with palms up
2. Slowly move the cane upward, keeping it as close to the body as possible
3. Hold for 1-2 seconds
4. 10-20 repetitions or until fatigue

## Shoulder Shrug Cane Exercise



1. Start with the cane centered in both hands. Slowly lift both shoulders and cane directly upwards and hold for 1-2 seconds
2. Slowly lower the shoulders and cane to the resting position
3. 10-20 reps or until fatigue

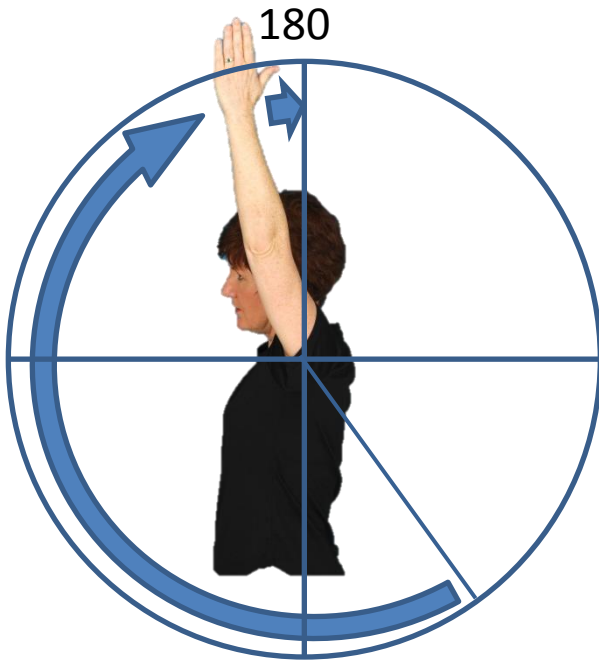
# Appendix

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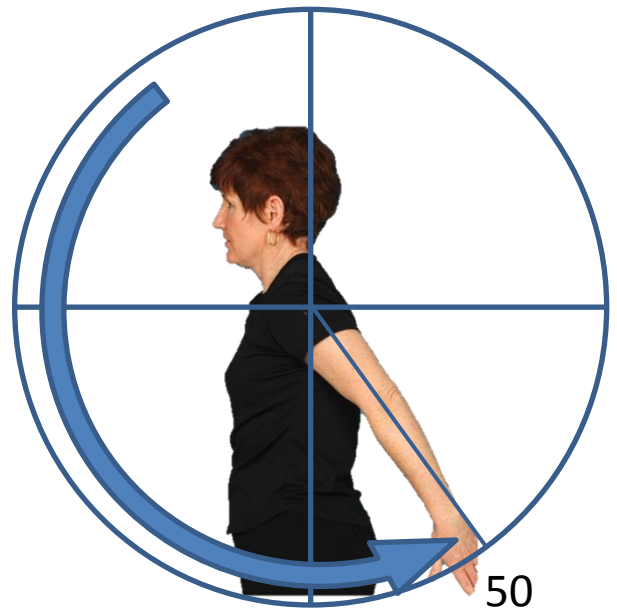
## Normal Range of Motion for the Shoulder Complex

| <u>Movement pattern</u>      | <u>Normal (full) motion</u> | <u>Functional (acceptable) motion</u> |
|------------------------------|-----------------------------|---------------------------------------|
| Flexion                      | 180°                        | 120-150°                              |
| Abduction                    | 180°                        | 120-150°                              |
| External Rotation at side    | 90°                         | 65-90°                                |
| Horizontal External Rotation | 90° or more                 | 65-90°                                |
| Horizontal Internal Rotation | 75°                         | 60-75°                                |

# Normal Range of Motion for the Shoulder Complex

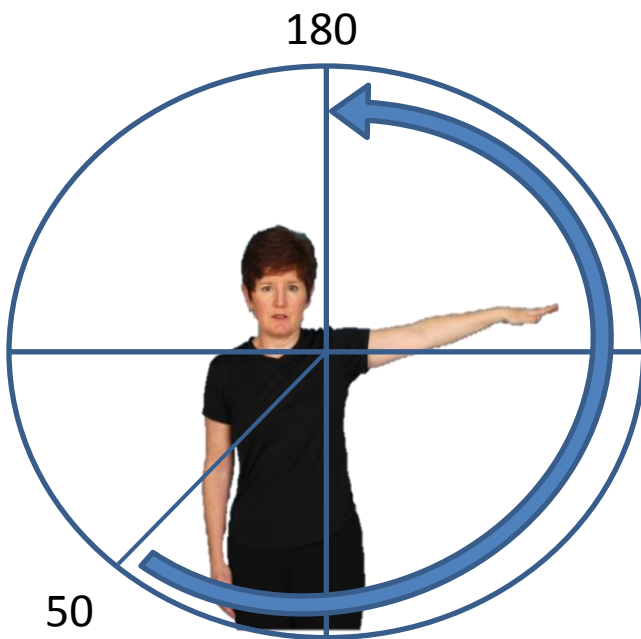


Flexion



Extension

The extent of movement limitation varies among individuals, as does the pattern of limited motion.

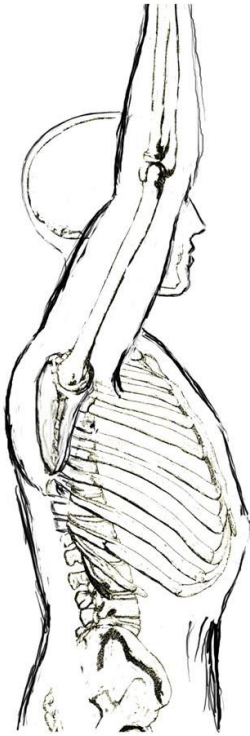


Adduction/ Abduction

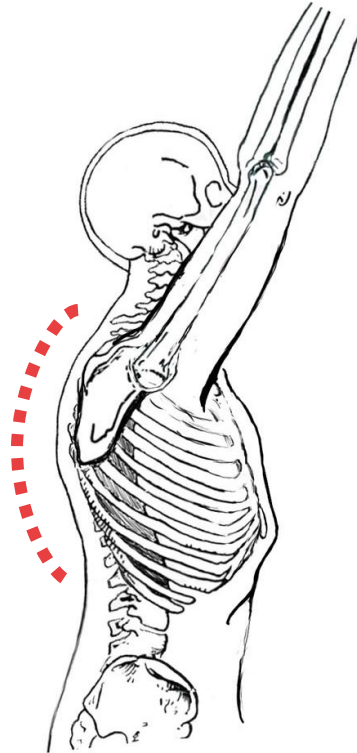


External/ Internal Rotation

# The Spine and Shoulder Motion



Normal spinal motion allows full overhead arm motion



An excessively rounded (kyphotic) spine may restrict overhead arm motion

End-range shoulder raising requires normal shoulder blade (scapula) motion and normal motion of the [thoracic] spine. The thoracic spine is the portion of the spine in which ribs attach. While reduced spinal motion and increased curling forward (kyphosis) of the spine may reduce shoulder motion, these causes are from a totally different mechanism than the one caused in adhesive capsulitis.

One study (Strunce and colleagues) found that a significant number of patients with shoulder pain responded favorably to spinal manipulation. In cases of shoulder pain that are accompanied by reduced spinal motion and rounded spines, it is reasonable to consider a trip to the chiropractor.

Strunce J, et al. The immediate effects of thoracic spine and rib manipulation on subjects with primary complaints of shoulder pain. *Journal of Manual & Manipulative Therapy*, 2009;17:230-236.

# The Spine and Shoulder Motion



Thoracic spine manipulation by a chiropractor may effect shoulder pain and motion.

Strunce and colleagues' research supports the use of spinal manipulation for certain shoulder conditions (though adhesive capsulitis is not mentioned).

Strunce J, et al. The immediate effects of thoracic spine and rib manipulation on subjects with primary complaints of shoulder pain. *Journal of Manual & Manipulative Therapy*, 2009;17:230-236.

## Pulley Exercises



Over-the-door pulley systems are a practical way to mobilize the shoulder in multiple planes of motion. The well arm pulls the frozen shoulder into various stretches. Pulley exercises can be used to perform many of the same range of motion exercises proposed in the exercise portion of this booklet.

## Differential Diagnosis

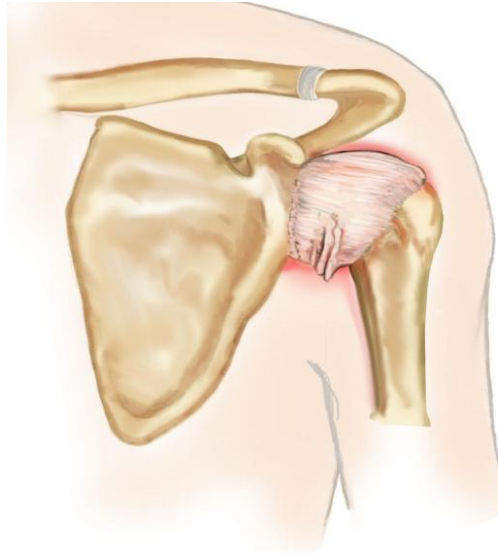
Frozen shoulder is not the only condition that causes limited shoulder motion. This list represents other causes of reduced shoulder motion:

- **Rotator Cuff Tear** – characterized by sudden shoulder pain after a traumatic event such as a fall or heavy lifting.
- **Labrum Tear** - pain that is accompanied by clicking and locking of the shoulder.
- **Malignant Tumor** - pain that is typically unremitting and worse at night. An immobile, non-tender nodule or lump may or may not be palpable.
- **Impingement Syndrome** - pain with overhead arm motion, often with history of increased activity in the overhead position due to occupation or sports.
- **Fracture** – arm, rib, or shoulder fracture will limit shoulder motion. Fractures are usually associated with trauma.
- **Dislocation of the shoulder**- a dislocation of the shoulder is normally a traumatic event that is easily recalled by the patient.

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# Managing the Frozen Shoulder



The empowerment of knowledge and understanding is important for managing any chronic health condition. Fear of the unknown or unrealistic expectations can lead to frustration and anxiety. This eBooklet attempts to educate the patient in order to understand the frozen shoulder, the available treatment options, and the timeline for healing. It is not a replacement for the care of a competent doctor or the professional management of a patient's rehabilitation.



Chiropractic Clinic

Department of Physical Medicine and Rehabilitation

Walter Reed National Military Medical Center, Bethesda, Maryland