Newsletter

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Frozen Shoulder

(Also known as Adhesive Capsulitis)

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What is a frozen shoulder?

A frozen shoulder is a condition characterized by inflammation, scarring and tightening of the connective tissue surrounding the shoulder joint, usually resulting in a marked loss of shoulder movement.

The shoulder joint is a ball and socket joint. The shoulder blade gives rise to the socket of the shoulder, whilst the ball arises from the top of the humerus (upper arm bone). Surrounding the ball and socket joint is strong connective tissue holding the bones together known as the shoulder joint capsule (figure 1).

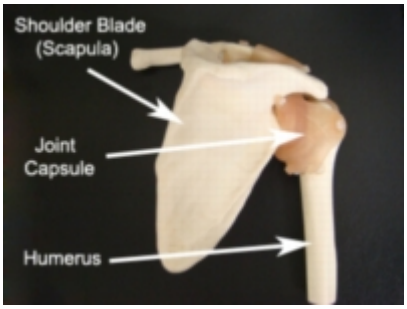

Figure 1 - Anatomy of Frozen Shoulder

Occasionally, the shoulder joint capsule may become inflamed with subsequent tightening and scarring of the shoulder joint capsule. When this occurs the condition is known as a frozen shoulder and usually results in a marked loss of shoulder range of movement.

Frozen shoulders most commonly occur in people over 40 years of age and typically affect women more commonly than men. They can generally be divided into 3 phases, each of which can last a number of months:

1. **Pain** – In this first phase of a frozen shoulder, the shoulder typically becomes painful with most movements. The shoulder may also start to stiffen during this phase.

2. **Freezing** – This second phase of this condition is characterized by a marked loss of movement of the shoulder, coinciding with scarring of the shoulder joint capsule. Patients typically experience difficulty when elevating the arm or taking their hand behind their back. Pain may decrease noticeably during this phase.

3. **Thawing** – In this final phase, the shoulder spontaneously begins to 'loosen' up and movement to the shoulder is gradually restored.

Causes of a frozen shoulder

Whilst the exact cause of a frozen shoulder is not exactly known, it is thought to occur following injury or damage to the shoulder joint or adjacent soft tissue. In these cases, a frozen shoulder is more likely to develop if the initial injury is not treated appropriately. This often occurs due to inadequate rest from aggravating activities or adopting a 'no pain no gain' attitude. A patient may also have an increased likelihood of developing the condition following excessive immobility (i.e. not moving the shoulder, particularly after injury or surgery) or if they suffer from other auto-immune diseases or diabetes.

Signs and symptoms of a frozen shoulder

The symptoms associated with this condition usually develop gradually over time. Patients typically experience a dull ache that may increase to a sharper pain with certain movements or activities. Pain tends to be focused deep in the shoulder, however may occasionally be experienced in the upper arm, upper back and neck. Patients may also experience stiffness in each of these regions.

The pain associated with a frozen shoulder may increase with any movement of the shoulder and with activities placing stress on the shoulder joint. These activities may include: arm elevation, lifting, carrying, pushing or pulling, lying on the affected side and taking your hand behind your back (e.g. putting on a bra). Patients with a frozen shoulder often experience pain at night or upon waking in the morning. As the condition progresses from the painful phase to the frozen phase, pain may reduce significantly.

Aside from pain, patients also typically experience marked stiffness and significantly reduced range of movement of the shoulder. This typically affects all shoulder movements, but is most noticeable with rotation and elevation. This may present as difficulty elevating the affected arm or an inability to take the hand behind the back. As this condition progresses from the frozen phase to the thawing phase, range of movement gradually increases with a subsequent reduction in joint stiffness. Patients may also develop muscle wasting in the affected arm, as the condition progresses, through lack of use.

Although a frozen shoulder generally affects only one side, some patients may develop the condition in both shoulders.

Diagnosis of a frozen shoulder

A thorough subjective and objective examination from a physiotherapist is usually sufficient to diagnose a frozen shoulder. Further investigations such as an Ultrasound or MRI scan may be required to assist diagnosis.

Treatment for a frozen shoulder

Once a frozen shoulder is established, little can be done to accelerate its course. The best treatment is therefore prevention. Many patients may be able to avoid developing this condition by ensuring they receive appropriate treatment for any shoulder injury they incur and diligently adhering to rehabilitation protocols as outlined by the treating physiotherapist. Once a frozen shoulder is established, treatment is aimed at minimizing pain and maintaining range of movement and function.

Most cases of frozen shoulder eventually settle well with appropriate physiotherapy. The success rate of treatment is largely dictated by patient compliance. One of the key components of treatment is that the patient rests sufficiently from ANY activity that increases their pain. Activities which place large amounts of stress through the shoulder should be minimized, these include: overhead activities, throwing, heavy lifting, heavy pushing or pulling and sleeping on the affected side. Rest from aggravating activities ensures that the body can begin the healing process in the absence of further tissue damage. Once the patient can perform these activities pain free, a gradual return to these activities is indicated provided there is no increase in symptoms.

Ignoring symptoms or adopting a 'no pain, no gain' attitude is likely to cause further tissue damage and prolong recovery. Immediate, appropriate treatment in patients at risk of developing a frozen shoulder or, who have the condition, is essential to ensure the fastest recovery.

Patients with this condition usually benefit from following the R.I.C.E. regime. The R.I.C.E regime is beneficial in the initial phase of the injury (first 72 hours) or when inflammatory signs are present (i.e. morning pain or pain with rest). This primarily involves resting from aggravating activities, regular icing

,and keeping the arm elevated (i.e. sleeping on the opposite side). Anti-inflammatory medication may also benefit those with a frozen shoulder by reducing the pain and swelling associated with inflammation.

Patients with this condition should perform pain-free flexibility and strengthening exercises as part of their rehabilitation to ensure an optimal outcome. The treating physiotherapist can advise which exercises are most appropriate for the patient and when they should be commenced. Exercises to improve posture and upper back flexibility are also important. In the final stages of rehabilitation, a gradual return to activity program is indicated as guided by the treating physiotherapist.

Prognosis of frozen shoulder

Most cases of frozen shoulder tend to settle after a number of months. In severe cases, symptoms may be present for 18 months or longer. Usually the painful stage of a frozen shoulder lasts 2 - 6 months. The frozen phase approximately 4 -12 months, whilst the thawing phase may last an additional 4 - 18 months.

In some cases, patients may experience ongoing and permanent restriction in movement following completion of all three stages. However, most cases of frozen shoulder will have a good outcome.

Contributing factors to the development of frozen shoulder

There are several factors which can predispose patients to developing a frozen shoulder. These need to be assessed and where possible, corrected with direction from a physiotherapist. Some of these factors may include:

- a history of recent shoulder injury
- a history of recent shoulder surgery
- inappropriate treatment following shoulder injury or surgery (particularly inadequate or excessive rest)
- a history of diabetes
- a history of auto-immune disease
- age > 40 years
- poor posture

Physiotherapy for frozen shoulder

Physiotherapy treatment for a frozen shoulder is vital to hasten the healing process and ensure an optimal outcome. Treatment may comprise:

- soft tissue massage
- electrotherapy (e.g. ultrasound, TENS)
- joint mobilization
- dry needling
- ice or heat treatment
- exercises to improve flexibility, strength and posture
- hydrotherapy
- education
- activity modification advice
- postural correction
- anti-inflammatory advice
- devising and monitoring an appropriate return to activity plan

Other intervention for frozen shoulder

Despite appropriate physiotherapy management, some patients with this condition do not improve adequately or require other intervention to ensure an optimal outcome. When this occurs the treating physiotherapist or doctor can advise on the best course of management. This may include further

investigations such as X-rays, ultrasound, CT scan or MRI, pharmaceutical intervention, corticosteroid injection, hydrodilatation, manipulation under anaesthetic or referral to appropriate medical authorities who can advise on any intervention that may be appropriate to improve the condition.

Exercises for frozen shoulder

The following exercises are commonly prescribed to patients with this condition. You should discuss the suitability of these exercises with your physiotherapist prior to beginning them. Generally, they should be performed 3 times daily and only provided they do not cause or increase symptoms.

Shoulder Blade Squeezes

Begin this exercise by standing or sitting with your back straight. Your chin should be tucked in slightly and your shoulders should be back slightly. Slowly squeeze your shoulder blades together as hard and far as possible provided it does not cause or increase symptoms (figure 2). Hold for 5 seconds and repeat 10 times.

Figure 2 – Shoulder Blade Squeezes

Pendular Exercises

Begin this exercise by leaning forwards with your good forearm supported on a table or bench (figure 3). Keeping your back straight and your shoulder relaxed, gently swing your affected arm forwards and backwards as far as possible pain-free. Repeat the exercise swinging your arm side to side as far as possible pain-free. Repeat 10 times each provided there is no increase in symptoms.

Figure 3 – Pendular Exercises (right side)

Pendular Circles

Begin this exercise by leaning forwards with your good forearm supported on a table or bench (figure 4). Keeping your back straight and your shoulder relaxed, gently swing your affected arm in circles clockwise as far as possible pain-free. Repeat the exercise swinging your arm counter clockwise. Repeat 10 times in each direction provided there is no increase in symptoms.

Figure 4 – Pendular Circles (right side)

Wall Crawl

Begin this exercise by standing tall and facing a wall. Place your hand on the wall and use your fingers to slowly finger-walk up the wall as far as possible provided there is no increase in symptoms (figure 5). Repeat 10 times.

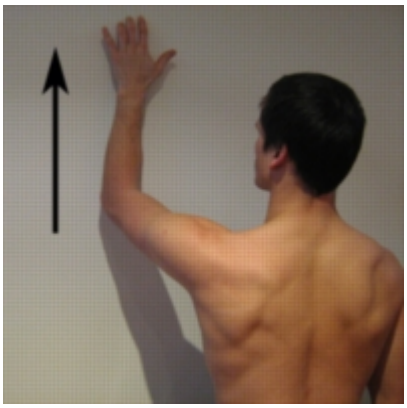

Figure 5 – Wall Crawl (left side)

Hand Behind Back

Begin this exercise by standing tall, with your neck and back straight (figure 6). Gently take your hand behind your back and up your spine as far as possible provided there is no increase in symptoms. Repeat 10 times.

Figure 6 – Hand Behind Back (left side)

External Rotation with Stick

Begin this exercise by standing tall with your back and neck straight and your shoulders back slightly (figure 7). Keeping your elbow by your side and bent to 90 degrees, use a broom handle to gently push your hand to the side as far as you can go without increasing symptoms. Repeat 10 times.

Figure 7 – External Rotation with Stick (right side)