

# Quick Reference Guide: Frozen Shoulder

## Frozen Shoulder Guide Highlights

Use this guide as a quick-reference resource. Here's a summary of what's inside:

### What is frozen shoulder?

Frozen shoulder is also known as adhesive capsulitis and is characterized by stiffness, pain, and limited range of motion in the shoulder joint. This condition typically develops gradually over time and takes one to three years for symptom improvement. The "freezing" of the shoulder results from the thickening of the shoulder joint capsule of connective tissue, causing it to tighten and restrict the shoulder joint.<sup>1</sup>

**Risk factors:** Reduced mobility, individuals over the age of 40, diseases such as diabetes, hyperthyroidism, hypothyroidism, cardiovascular disease, and Parkinson's.

**Symptoms:** Unlike other forms of shoulder pain, frozen shoulder symptoms typically present in a four-stage process.<sup>2</sup> Most therapy is supported during the early and thawing stages.

- **Stage 1** Early Stage (1 to 3 months), pain at rest, at the end of range of motion, and difficulty sleeping
- **Stage 2** Freezing / Painful Stage (3 to 9 months), pain, gradual loss of ROM
- **Stage 3** Frozen (9 to 15 months), ROM severely limited and painful
- **Stage 4** Thawing (15 to 24 months), symptoms begin to resolve

### Treatment Strategies:

- #1 Glucocorticoid injection<sup>10</sup>
- #2 Arthrographic joint distension<sup>11</sup>
- #3 Modalities

### Modalities for Shoulder Impingement:

- Electrical Simulation<sup>2</sup>
- Shortwave Diathermy<sup>2</sup>
- High Intensity Laser Therapy<sup>5</sup>
- Ultrasound<sup>2</sup>
- Stretching Exercises<sup>2, 5</sup>
- Radial Pressure Wave Therapy (Shockwave)<sup>9</sup>

However, a recent meta-analysis by Zhang and colleagues stated that extracorporeal shock wave therapy and high intensity laser therapy are the preferred new treatments as both modalities have demonstrated benefits to patient recovery.<sup>8</sup>

## What is frozen shoulder?

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### Frozen shoulder risk factors<sup>1</sup>

- #1 Reduced mobility from injury, surgery, or stroke.
- #2 Individuals over the age of 40 with women being more likely to be affected by the condition.
- #3 Diseases such as diabetes, hyperthyroidism, hypothyroidism, cardiovascular disease, and Parkinson’s.

### Frozen shoulder symptoms and stages

Unlike other forms of shoulder pain, frozen shoulder symptoms typically present in a four-stage process.<sup>2</sup> Most therapy is supported during the early and thawing stages.



#### Stage One Early Stage (1 to 3 months)

During this stage of the condition, range of motion is typically unaffected often resulting in the condition being misdiagnosed as shoulder impingement. Patients experience pain in the shoulder when at rest and at the end range of motion. Patients also tend to report difficulty sleeping.<sup>2,3</sup>



#### Stage Two Freezing/ Painful Stage (3 to 9 months)

By this stage, the synovium has become inflamed. Pain continues to increase and patients gradually lose range of motion in all directions.<sup>2,3</sup> Home exercise programs can be prescribed to help patients retain range of motion and reduce pain.



#### Stage Three Frozen (9 to 15 months)

As the name of this stage suggests, range of motion is severely limited in all directions. Pain continues and can be a throbbing sensation for patients even at rest. The synovium becomes less inflamed, but it is replaced with capsuloligamentous fibrosis.<sup>2,3</sup>



#### Stage Four Thawing (15 to 24 months)

During this stage, symptoms begin to resolve. Both the synovitis and capsular fibrosis are diminished and patient pain improves. Mild pain and mobility deficits may persist for several years, but patients still tend to report improvement in function and are able to return to routine activities.<sup>2,3</sup> Physical therapy programs focused on joint mobility and restoring functional strength to the shoulder can be helpful during this stage.

## Treatment Strategies for Frozen Shoulder

The course of frozen shoulder is broken down into four different stages, each characterized by levels of pain and pathological changes. Therefore, it is important to cater treatment strategies to address the specific stage of the condition.

Pain begins to build during the early stage and continues to increase until it peaks at the frozen stage. Providing patients with pain relief during these stages is a top priority.<sup>4</sup> Specifically, the CPG (Clinical Practice Guideline) from the American Physical Therapy Association recommends therapy during the early inflammatory stages (six-eight weeks) to help manage pain and provide patient education.<sup>2</sup>

Addressing pain will enable patients to continue to do their daily activities while at the same time allowing for exercise and some mobilization techniques. As the condition progresses to the frozen stage and the range of motion is lost, the treatment strategy should be adjusted to focus on regaining function and increasing the range of motion. By the thawing stage, pain is minimal, so therapy can continue to focus on functional improvements.<sup>4</sup>

Pain relief in frozen shoulder can be managed by various mechanisms including nonsteroidal anti-inflammatories, corticosteroids (oral and injectable), short wave diathermy, ultrasound, heat therapy, electrotherapy, and high intensity laser therapy.<sup>2,4</sup>

### Glucocorticoid injection<sup>10</sup>

- Superior to placebo and physiotherapy in the short-term (up to 12 weeks).
- There was no difference in outcomes between corticosteroid injection and oral nonsteroidal anti-inflammatory drugs at 24 weeks.
- Generally safe, with infrequent and minor side effects.
- Usually performed during early stages when pain is the predominant presentation.

### Arthrographic joint distension<sup>11</sup>

- Joint distention, also referred to as guided hydrodilatation, is a treatment performed by injecting mixed, diluted corticosteroid and local anesthetic into the contracted glenohumeral joint space.
- This is performed under ultrasound guidance to achieve hydraulic capsular distension (or rupture) and reduce inflammation and pain.
- Commonly followed by physiotherapy for continued joint mobilization and range of motion work.

As noted in the Cochrane review by Page et al., high intensity laser therapy, when added to exercise, provided frozen shoulder patients with more pain relief than patients that received exercise therapy alone.<sup>5</sup> Ordahan et al. compared treating frozen shoulder with low level laser therapy versus treating with high power laser therapy. Shoulder pain was significantly improved in both groups demonstrating the effectiveness of laser therapy in helping to manage the symptoms of frozen shoulder. **It is important to note, however, that the patients treated with high power laser therapy had better outcomes than those treated with low level laser therapy.**<sup>6</sup>

When it comes to improving shoulder function and range of motion, Pandy and Madi suggest a therapy program focused on mobilization of the shoulder including range of motion exercises as well as muscle strengthening exercises.<sup>4</sup> Jain and colleagues recommend adding heat therapy as it can help improve range of motion, shoulder function, and decrease pain.<sup>7</sup> Steroid injections and capsular distension are also common treatments for helping patients to regain function.

A recent meta-analysis by Zhang and colleagues stated that extracorporeal shock wave therapy and high intensity laser therapy are the preferred new treatments” as both modalities have demonstrated benefits to patient recovery.<sup>8</sup>

### Research supports this statement:

A clinical study by Naggar et al. demonstrated that treatment with radial pressure wave therapy gave frozen shoulder patients more pain relief and better functional outcomes than those treated with an intra-articular steroid injection.<sup>9</sup>

In the Page et al. Cochrane review, patients treated with high intensity laser therapy and exercise had more functional improvement and better range of motion than those only completing exercises.<sup>5</sup>

The Ordahan et al clinical trial demonstrated that patients treated with high intensity laser therapy had significant functional improvement after three weeks.<sup>6</sup>

In about 90% of patients, conservative treatment can provide patients pain relief and help them to regain their shoulder function. For those that need additional treatment, surgical procedures, such as glenohumeral manipulation or arthroscopic capsular release may be required.<sup>4</sup>

**Recommended modalities include**

- **Lightforce Laser Therapy<sup>5</sup>**

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- **Shortwave Diathermy<sup>2</sup>**
- **Radial pressure wave (Shockwave)<sup>9</sup>**

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### Recommended Additional Reading

Ordahan article and article summary: Efficacy of Low-level Laser Versus High-intensity Laser Therapy in the Management of Adhesive Capsulitis: A Randomized Clinical Trial<sup>6</sup>

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10393096/>

## Charging for frozen shoulder treatment

Cash-based modalities such as high intensity laser therapy are rising in popularity among patients and practitioners alike because of their ability to relieve pain, enabling more effective therapy sessions and, in some cases delaying or eliminating the need for surgery. Marketing directly to this patient group can increase your clinic's cash-pay services.

Frozen shoulder cases typically require several treatment sessions to start seeing outcomes. Therefore, package pricing models are a good way to drive patient compliance and revenue.

For patients receiving laser or RPW therapy, typically, more than one session is needed for optimal results. Selling treatments in a package can increase patient compliance with the recommended plan of care.

Packages with different numbers of visits can be presented to the patient with their specific condition in mind. Clinics report selling packages ranging from 3 to 20 visits, the higher number for more chronic conditions. There are normally price incentives for higher volume packages.

Many clinics use the 3, 6, 10 model to address the spectrum of minor to more chronic conditions, with six visits being the most common package. If patients desire additional visits, they can purchase a new package. Six-visit packages are popular because they allow 2-3 treatments over a 2-3 week period, which is usually sufficient to positively impact patient symptoms.

### Charging for Treatment:

**3-Treatment Package:** \$60 per visit (\$180)

**6-Treatment Package:** \$50 per visit (\$300)

**10-Treatment Package:** \$40 per visit (\$400)

*The calculations and other data presented herein are for illustrative purposes only and are not to be relied upon for budgeting, planning, internal reporting, or other purposes. Actual benefits / consequences resulting from the use at your practice of the program presented herein may vary materially from the data presented above. Calculations and calculation methodology available upon request.*

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