

# Chronic Shoulder Pain: Part II. Treatment

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Chronic shoulder pain is a common problem in the primary care physician's office. Effective treatment depends on an accurate diagnosis of the more common etiologies: rotator cuff disorders, adhesive capsulitis, acromioclavicular osteoarthritis, glenohumeral osteoarthritis, and instability. Activity modification and analgesic medications comprise the initial treatment in most cases. If this does not lead to improvement, or if the initial presentation is of sufficient severity, a trial of physical therapy that focuses on the specific diagnosis is indicated. Combined steroid and local anesthetic injections can be used alone or as an adjuvant to the physical therapy. The site of the injection (subacromial, acromioclavicular joint, or intra-articular) depends on the diagnosis. Injections into the glenohumeral joint should be done under fluoroscopic guidance. Symptoms that persist or worsen after six to 12 weeks of directed treatment should be referred to an orthopedic specialist. (*Am Fam Physician*. 2008;77(4):493-497. Copyright © 2008 American Academy of Family Physicians.)

This is part II of a two-part article on chronic shoulder pain. Part I, "Evaluation and Diagnosis," appears in this issue of *AFP* on page 453.

An estimated 20 percent of the population will suffer shoulder pain during their lifetime.<sup>1</sup> Shoulder pain is second only to low back pain in patients seeking care for musculoskeletal ailments in the primary care setting.<sup>2</sup> Part I of this two-part article, which appears in this issue of *AFP* (p. 453), presents an approach for diagnosing chronic shoulder disorders such as rotator cuff pathology, adhesive capsulitis, acromioclavicular osteoarthritis, glenohumeral osteoarthritis, and instability. This part of the article addresses the treatments of these conditions.

## Treatment Overview

A recent Cochrane review showed little evidence for or against the most common treatments of these chronic shoulder disorders;<sup>3</sup> this is mainly because of a lack of well-designed clinical trials. Nonetheless, most patients with a chronic shoulder disorder can initially be treated conservatively with some combination of activity modification, physical therapy, medications, and corticosteroid injections, if necessary. This approach produces satisfactory results in the majority of patients.<sup>4,5</sup> Referral to a specialist is indicated for patients with pain that does not respond to an appropriate regimen of nonoperative treatment. *Table 1*<sup>6-8</sup> outlines the management of conditions associated with chronic shoulder pain.

## ACTIVITY MODIFICATION

Activity modification is a simple treatment for reducing shoulder pain with specific recommendations based upon the underlying diagnosis. Reduction or avoidance of overhead activity is the mainstay of treatment for rotator cuff pathology, glenohumeral osteoarthritis, and adhesive capsulitis, because this avoids the painful arc between 60 to 120 degrees, which is a provocative maneuver for the diagnosis of these disorders.<sup>9</sup> Avoiding heavy loading of the shoulder can also help with the pain associated with glenohumeral osteoarthritis. Certain overhead activities can precipitate instability symptoms. Bench pressing, kayaking, and overhand throwing are particularly risky in patients with an unstable shoulder. Cross-body shoulder adduction, such as the motion performed in the golf swing or while weight lifting, should be limited in patients with acromioclavicular osteoarthritis because it can recreate acromioclavicular joint pain.<sup>9</sup>

## MEDICATIONS

Pain control is imperative to allow for the progression of treatment. The use of nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, or short-term opiate medication may help achieve this goal. There is no conclusive support for the use of NSAIDs over simple analgesia in the treatment of

**SORT: KEY RECOMMENDATIONS FOR PRACTICE**

<i>Clinical recommendation</i>	<i>Evidence rating</i>	<i>References</i>
Most patients with chronic shoulder pain improve with nonoperative treatment. Worse outcomes are associated with severe pain, prolonged symptoms, or gradual onset.	B	4, 5
There is little evidence for or against the use of medication for chronic shoulder pain.	B	10
Physical therapy can provide improved short-term recovery and long-term function for rotator cuff disorders.	B	11
Although subacromial corticosteroid injections for rotator cuff disorders are very common in clinical practice, there is little evidence to support or refute its use.	B	12-16
Glenohumeral joint injection has been shown to hasten the resolution of symptoms in patients with adhesive capsulitis, but most patients resolve without intervention, and interventions have not been shown to improve long-term outcomes.	B	16, 19

*A = consistent, good-quality patient-oriented evidence; B = inconsistent or limited-quality patient-oriented evidence; C = consensus, disease-oriented evidence, usual practice, expert opinion, or case series. For information about the SORT evidence rating system, see page 410 or <http://www.aafp.org/afpsort.xml>.*

chronic shoulder pain.<sup>10</sup> Therefore, the risks and benefits of each class should be considered before use.<sup>6</sup>

**PHYSICAL THERAPY**

Physical therapy encompasses a large range of treatments. There are therapeutic modalities designed to alleviate pain directly (heat and ice, ultrasound, iontophoresis, hyperthermia), and stretching and strengthening exercises intended to relieve pain by improving overall shoulder function. The type and focus of physical therapy depends on the underlying etiology. Little evidence exists for the use of therapeutic modalities alone.<sup>11</sup> A recent Cochrane review showed that stretching and strengthening provide improved short-term recovery and long-term function in patients with rotator cuff disease.<sup>11</sup> The success of physical therapy is optimized

when the underlying diagnosis is known and the patient actively participates in the rehabilitation process on a daily basis.

**INJECTIONS**

If patients have a poor response to initial treatment for chronic shoulder disorders, corticosteroid injections combined with a local anesthetic can be administered. The injection needs to be directed toward the affected area, such as the subacromial space, acromioclavicular joint, or glenohumeral joint. The role of subacromial injection for rotator cuff disease is an area of active research and controversy. Two systematic reviews found little evidence to support or refute the use of subacromial injection; two systematic reviews found it to be beneficial for rotator cuff tendinitis and shoulder pain;

**Table 1. Management of Chronic Shoulder Pain**

<i>Cause</i>	<i>Initial management</i>	<i>Further treatment options if no improvement with initial management</i>
Acromioclavicular joint osteoarthritis	Activity modification; acetaminophen or NSAIDs	Corticosteroid/local anesthetic injection into the acromioclavicular joint; surgery
Adhesive capsulitis	Activity modification; physical therapy; acetaminophen or NSAIDs; intra-articular corticosteroid injection	Corticosteroid injection, possible surgery
Glenohumeral instability	Activity modification; physical therapy	Surgery
Glenohumeral osteoarthritis	Activity modification; physical therapy; acetaminophen or NSAIDs; treat comorbidities	Corticosteroid injection, possible surgery
Rotator cuff pathology	If small rotator cuff tear: activity modification; physical therapy; acetaminophen or NSAIDs If large rotator cuff tear: may either try conservative therapy, as listed above, or go directly to surgery	Corticosteroid injection, possible surgery

*NSAIDs = nonsteroidal anti-inflammatory drugs.*

*Information from references 6 through 8.*

and another review suggested a possible small benefit.<sup>12-16</sup> Individual studies have found subacromial injections to be beneficial, particularly for short-term decreases in pain and increases in function.<sup>14,16-18</sup> Subacromial injections for rotator cuff disease is a treatment option currently supported by the American Academy of Orthopedic Surgeons (AAOS), although this may change with further review.<sup>8</sup>

Patients with adhesive capsulitis have been shown to respond to intra-articular injections with decreased pain and increased function, particularly in combination with physical therapy for stretching.<sup>16,19</sup> Intra-articular steroid injections are not recommended by the AAOS for glenohumeral osteoarthritis.<sup>8</sup> Intra-articular hyaluronic acid injections have shown promise in several studies on glenohumeral osteoarthritis, but the AAOS has no recommendation for this treatment to date.<sup>6</sup> Injection into the acromioclavicular joint for osteoarthritis is endorsed by the AAOS, despite few studies demonstrating its effectiveness.<sup>8</sup> Injection into the acromioclavicular joint can provide some diagnostic information because even short-term relief of symptoms can help confirm the diagnosis.

Several recent studies have questioned the accuracy of injections performed in the physician's office without radiographic guidance, particularly those injected into the glenohumeral joint.<sup>20,21</sup> Therefore, whereas subacromial and acromioclavicular injections can be performed in the office, injection into the glenohumeral joint should ideally be done by an interventional radiologist who performs them under fluoroscopy.

#### **SURGICAL REFERRAL**

Although most chronic shoulder problems can be treated conservatively with activity modification, oral medications, physical therapy, and possible corticosteroid injections, there are cases where surgical intervention is required. Patients may require referral if they do not respond to conservative measures despite adequate time with the appropriate treatment. Patients with continued instability or disabling pain that is not responsive to initial conservative measures may require earlier surgical referral.<sup>6-8</sup> Surgical or specialty referral also should be considered when the diagnosis is unknown.<sup>6-8</sup>

#### **Treatment of Specific Conditions**

##### **ACROMIOCLAVICULAR OSTEOARTHRITIS**

Chronic pain from acromioclavicular osteoarthritis is a common condition that can be associated with subacromial impingement syndrome of the shoulder. The mainstay of treatment for this self-limiting disorder is pain control and activity modification.<sup>8</sup> Pain control may be

accomplished in milder stages with the use of NSAIDs or other analgesics, whereas corticosteroid injections are often effective in short-term pain control for more severe cases.<sup>22</sup> Failure to improve or maintain function with conservative measures warrants surgical referral, and resection of the distal clavicle is often effective in relieving pain symptoms.<sup>23,24</sup> There has been no systematic review or meta-analysis comparing conservative versus operative treatment of symptomatic chronic acromioclavicular osteoarthritis.

##### **ADHESIVE CAPSULITIS**

The treatment of adhesive capsulitis is challenging because both the problem and the initial treatment are painful. Long-term follow-up studies have found that adhesive capsulitis will resolve spontaneously over one to two years without intervention, although some non-functional range of motion loss may be chronic.<sup>8,25</sup> Treatment is directed at decreasing the duration of symptoms. The mainstays of treatment include activity modification to decrease pain initially, anti-inflammatory or analgesic medication, and a physical therapy regimen for stretching, which should be done with the therapist and at home.

If there is no progress or slow progress after six weeks, an intra-articular steroid injection can potentiate the effects of the physical therapy. An intra-articular injection of lidocaine (Xylocaine) and corticosteroid has shown short-term benefit in decreasing pain and disability at the six week follow-up.<sup>26</sup> This improvement may be attributed to capsular distention from the injected solution, as well as the anti-inflammatory effect of the steroid,<sup>27</sup> so it is important that the injection into the joint be performed correctly. Accuracy is improved with fluoroscopically assisted injection. The use of dye confirms the position of the needle and provides the added benefit of an arthrogram, which can rule out other concomitant pathologies (such as a rotator cuff tear) as well as distend the joint. The patient should reinstate the stretching exercises one week after the injection. The need for surgical intervention is rare. Because of the natural history of the disease, referral is not indicated until the patient has failed six months of nonoperative treatment, or if the diagnosis is in question. Surgery generally involves manipulation under anesthesia or arthroscopic capsular releases.

**Injection into the glenohumeral joint should ideally be done under fluoroscopy by an interventional radiologist.**

## Shoulder Pain Treatment

### GLENOHUMERAL JOINT INSTABILITY

Chronic shoulder pain from glenohumeral instability may be related to an old dislocation or repetitive overuse in a young athlete with some ligamentous laxity. Treatment for both of these should focus on activity modification and an aggressive strengthening program. Strengthening of the rotator cuff and scapular stabilizers can be very helpful, particularly for athletes with traumatic instability.<sup>28</sup> Athletes often require progression to plyometric and sport-specific exercises. Because there is little support for these nonoperative treatments in the literature, early referral is recommended in these patients.<sup>8</sup> Surgery may be considered if there is failure to improve with conservative treatment or recurrent dislocation and subluxation. Failure to improve may also indicate a secondary issue. In patients older than 40 years, there is a high incidence of associated rotator cuff tears with shoulder dislocations.<sup>29</sup> Glenohumeral osteoarthritis that is secondary to the initial injury or a stabilization procedure is also possible.<sup>30</sup>

### GLENOHUMERAL OSTEOARTHRITIS

Glenohumeral osteoarthritis is a less common source of chronic shoulder pain, but it can result in significant pain and disability. The focus of treatment is to maintain overall function with adequate pain control. Initial attempts at pain control may include anti-inflammatory or analgesic medications. If pain is inadequately controlled, an intra-articular injection may be considered, although there is little evidence to support this intervention and it is not endorsed by the AAOS.<sup>8</sup>

Physical therapy can be helpful to maintain function of the shoulder joint, but should be undertaken with caution. Patients with glenohumeral osteoarthritis often have joint incongruity. Aggressive attempts at increasing the range of motion can be counterproductive. Maintenance of a functional, pain-free range of motion can be helpful. Control of comorbid conditions, such as diabetes or rheumatoid arthritis, is imperative. Surgical referral is indicated if conservative treatment fails. The timeframe for referral varies depending on the level of disability. Capsular release and arthroscopic debridement, hemiarthroplasty, and total shoulder arthroplasty are surgical options in the management of glenohumeral osteoarthritis.<sup>31</sup> There are no clinical trials or systematic reviews comparing conservative versus surgical treatment outcomes.

### ROTATOR CUFF DISORDERS

Chronic shoulder pain caused by rotator cuff pathology often can be treated successfully with a combination of conservative modalities.<sup>32,33</sup> Initial treatment

involves activity modification, physical therapy and anti-inflammatory or analgesic medication. The goal of physical therapy is to optimize the function of the shoulder joint complex through improvements of strength, range of motion, and proprioception. If a patient has made little progress after several weeks, or if the patient has significantly limited function secondary to pain initially, a subacromial corticosteroid injection may provide significant pain control that allows an improved range of motion and progression into physical therapy.<sup>34</sup> Provided that clinical assessment demonstrates an intact rotator cuff, a three- to six-month trial of conservative treatment is considered adequate before referral. For small rotator cuff tears, six to 12 weeks of nonoperative treatment is reasonable before referral. The physician needs to be attentive to large, retracted rotator cuff tears, which are especially likely if there has been a history of trauma or a dislocation. These patients often present with severe pain and significant weakness with testing of the supraspinatus, infraspinatus, or subscapularis. Prompt referral is indicated in these cases. Surgical treatment options include open, mini-open, or arthroscopic decompression and rotator cuff repair.

### Prognosis

The prognosis of chronic shoulder pain largely depends on the underlying pathology, but it appears to respond well to conservative treatment overall.<sup>35,36</sup> There is limited research on the success of nonoperative management, but it appears that symptoms of gradual onset, prolonged symptoms, and more severe pain at presentation are associated with a worse outcome for protracted recovery.<sup>37,38</sup> In general, the speed of recovery in chronic shoulder pain is slow. Two prospective studies of patients with chronic shoulder pain have shown complete recovery at one month in 23 percent of patients, and at 18 months in 59 percent of patients.<sup>4,5</sup>

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