



# Shoulder Pain

Integrating Research into Practice:  
Athlon Physical Therapy's Approach to Evidence-Based Practice

**PROBLEM:**

**Shoulder Pain**

**40%** Number of patients with shoulder disorders at 1 year who are still disabled during work or leisure time.<sup>1, 2</sup>

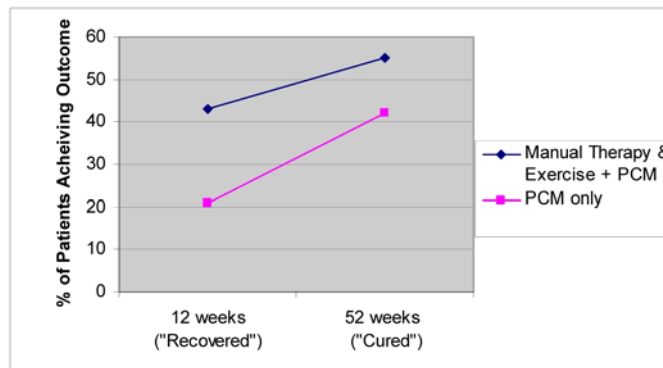
**50%** Number of patients with shoulder disorders who are not fully recovered at 6 months. <sup>1, 2</sup>

**INTERVENTION:**

- **Manual Physical Therapy & Exercise**
- **Neuromuscular Re-education Exercise**

**EVIDENCE:**

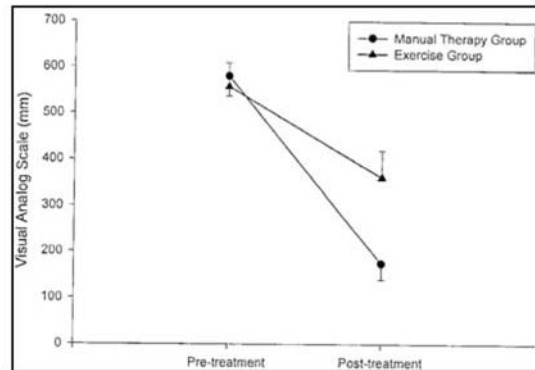
**Oxford Evidence Grade= A (level= 1a studies)**



**Figure 1. Patients “Recovered” (12wks) & “Cured” (52wks)**

Primary care management (PCM) was more effective when combined with manual physical therapy and exercise intervention than PCM alone for the management of patients with painful shoulder disorders, including neck and arm symptoms.

At 12 weeks, twice as many patients with shoulder dysfunction and pain who received PCM and manual physical therapy plus exercise had achieved “Recovered” status versus those receiving PCM only. In addition, It took 1 year for patients who received PCM only to achieve the same 12 week outcome realized by those who received PCM + manual physical therapy and exercise (figure 1).<sup>3</sup>



**Figure 2. Summed VAS Pre - Post Pain Scores**

**Bang MD, Deyle GD.** Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. *J Orthop Sports Phys Ther.* 2000;30:126-137

Manual physical therapy to the cervicothoracic spine and ribs in addition to PCM is more effective than PCM alone in improving success rates from non-surgical rehabilitation. <sup>1, 3, 4</sup> Importantly, these effects are still maintained 1 year later. <sup>1, 3</sup> Therefore, it is important that physical therapists are proficient with manual physical therapy interventions for the ribs and cervicothoracic spine. Manual physical therapy and exercise is more effective for reducing pain and improving outcomes in patients with rotator cuff disease when compared to competing interventions. <sup>3-5</sup> (figure 2) Although manual physical therapy and local corticosteroids were of similar effectiveness for treating unilateral shoulder pain in primary care, patients receiving manual physical therapy had fewer co-interventions at 6 months. <sup>6</sup>

#### **Number Needed to Treat (NNT)**

**5** - NNT when adding manual physical therapy and exercise to primary care management (PCM) to achieve one additional successful outcome (complete recovery at 12 weeks) than would have occurred if patients were receiving an alternative treatment approach (in this case general practitioner care alone). <sup>3</sup> This means that only 5 patients with a painful shoulder need to be treated with manual physical therapy and exercise before realizing benefits above and beyond that compared to PCM. Would further clarification be helpful? Let's consider 5 hypothetical patients with a painful shoulder. If 5 patients received PCM without manual physical therapy and exercise, one of them would not achieve a successful outcome. However, treating these patients with manual physical therapy and exercise would result in all patients achieving a successful outcome. Low numbers needed to treat imply that the benefits of manual physical therapy and exercise can be frequently realized when you see a patient with a painful shoulder.

**6** - NNT when adding manual physical therapy and exercise to PCM to achieve one additional successful outcome (complete recovery at 1 year) than would have occurred if patients were receiving an alternative treatment approach (in this case general practitioner care alone). <sup>4</sup> This means that only 6 patients with a painful shoulder need to be treated with manual physical therapy and exercise before realizing benefits above and beyond that compared to standard care.

**REFER:** Patients with shoulder pain of gradual or sudden onset that occurs with lifting, reaching, especially at shoulder level or overhead. Often, examination indicates a component of strain or impairment of the rotator cuff muscles. <sup>3-5</sup> This approach is particularly indicated if patients are experiencing associated neck and thoracic pain, including radiating upper arm pain. <sup>3</sup> Based on evidence from high quality clinical trials, manual physical therapy and exercise approach will benefit many of your patients with shoulder pain. <sup>3,4,5</sup>

The best way is to send a consult with the “Evaluate and Treat” option checked. You will receive a copy of your patient’s initial note as well as a copy of the discharge note summarizing their outcome.

### **CONTRAINDICATIONS:**

Patients with severe and full-thickness rotator cuff tears, grade II – III acromioclavicular joint separation, suspected fracture, and instability of the glenohumeral joint should not have the affected area treated with mobilization. For patients with cervical spine involvement or suspected involvement, it is recommended that region be treated first. Patients who have a previous history of cancer, significant night pain, and unexplained weight-loss should be assessed carefully, and if referred we will monitor their status closely.

### **MINIMALLY EFFECTIVE OR UNSUPPORTED INTERVENTIONS:**

Traditional passive interventions and modalities have not been shown to be effective for significantly reducing shoulder symptoms and disability.<sup>7, 8</sup> One exception is patients with symptomatic calcific tendonitis. In these patients the use of therapeutic ultrasound does help resolve calcification and results in improvements in patient-centered outcomes. However, effective treatment consists of 24 sessions that last for 15 minutes each, which may not be feasible for many patients.<sup>9</sup>

## **INTERVENTION**

**Typical care episode:** acute problems, 1 - 2 visits weekly for 1-3 weeks (total of 4-6 sessions); chronic problems, 2 – 3 visits weekly for 3-4 weeks (8-12 visits)

### **Content:**

1. Evidence-based examination of cervical spine, upper quarter, and glenohumeral joint.<sup>10, 11</sup>
2. Tailored, combined treatment approach of the cervico-thoracic spine, shoulder girdle complex, and gleno-humeral joint consisting of manual therapy, exercise (flexibility, strength and endurance), and neuromuscular re-education:

#### **A. Manual Therapy**



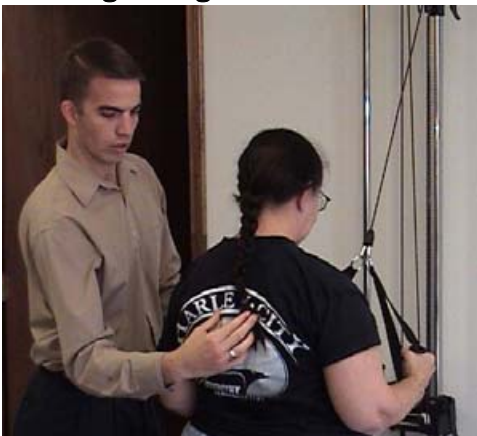
## B. Neuromuscular Re-education



## C. Endurance & Stretching Exercises



## D. Strengthening



## Exercises

3. Education and advice based emphasizing efficient biomechanics and self responsibility
4. Home exercise and tailored work and functional activities program

## References

1. Winters JC, Sobel JS, Groenier KH, Arendzen JH, Meyboom-de Jong B. The long-term course of shoulder complaints: a prospective study in general practice. *Rheumatology (Oxford)* 1999;38(2):160-3.
2. van der Windt DA, Koes BW, de Jong BA, Bouter LM. Shoulder disorders in general practice: incidence, patient characteristics, and management. *Ann Rheum Dis* 1995;54(12):959-64.
3. Bergman GJ, Winters JC, Groenier KH, et al. Manipulative therapy in addition to usual medical care for patients with shoulder dysfunction and pain: a randomized, controlled trial. *Ann Intern Med* 2004;141(6):432-9.
4. Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. *J Orthop Sports Phys Ther* 2000;30(3):126-37.
5. Winters JC, Jorritsma W, Groenier KH, Sobel JS, Meyboom-de Jong B, Arendzen HJ. Treatment of shoulder complaints in general practice: long term results of a randomised, single blind study comparing physiotherapy, manipulation, and corticosteroid injection. *Bmj* 1999;318(7195):1395-6.
6. Hay EM, Thomas E, Paterson SM, Dziedzic K, Croft PR. A pragmatic randomised controlled trial of local corticosteroid injection and physiotherapy for the treatment of new episodes of unilateral shoulder pain in primary care. *Ann Rheum Dis* 2003;62(5):394-9.
7. Philadelphia Panel evidence-based clinical practice guidelines on selected rehabilitation interventions for shoulder pain. *Phys Ther* 2001;81(10):1719-30.
8. Leduc BE, Caya J, Tremblay S, Bureau NJ, Dumont M. Treatment of calcifying tendinitis of the shoulder by acetic acid iontophoresis: a double-blind randomized controlled trial. *Arch Phys Med Rehabil* 2003;84(10):1523-7.
9. Ebenbichler GR, Erdogmus CB, Resch KL, et al. Ultrasound therapy for calcific tendinitis of the shoulder. *N Engl J Med* 1999;340(20):1533-8.
10. Flynn TW, Whitman J, Magel J. *Orthopaedic Manual Physical Therapy Management of the Cervical-Thoracic Spine & Ribcage*. San Antonio, TX: Manipulations, Inc.; 2000.
11. Wainner RS, Fritz JM, Irrgang JJ, Boninger ML, Delitto A, Allison S. Reliability and diagnostic accuracy of the clinical examination and patient self-report measures for cervical radiculopathy. *Spine* 2003;28(1):52-62.