

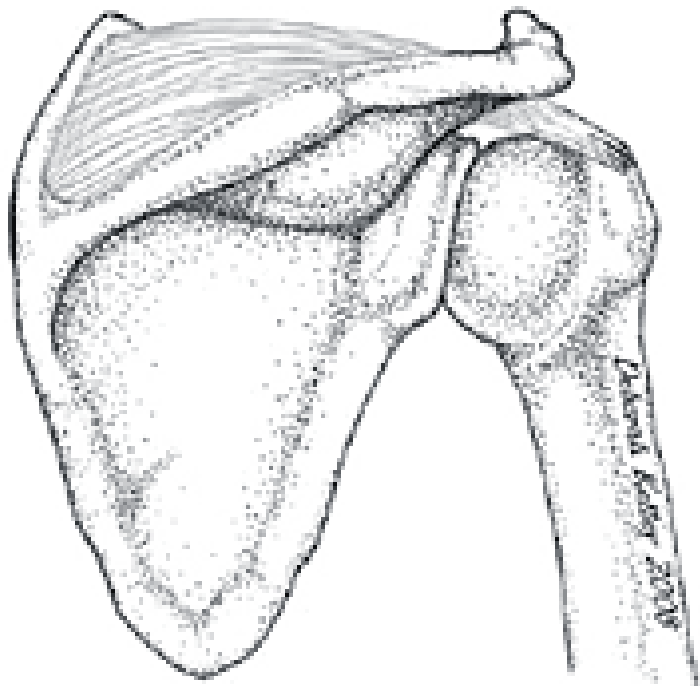
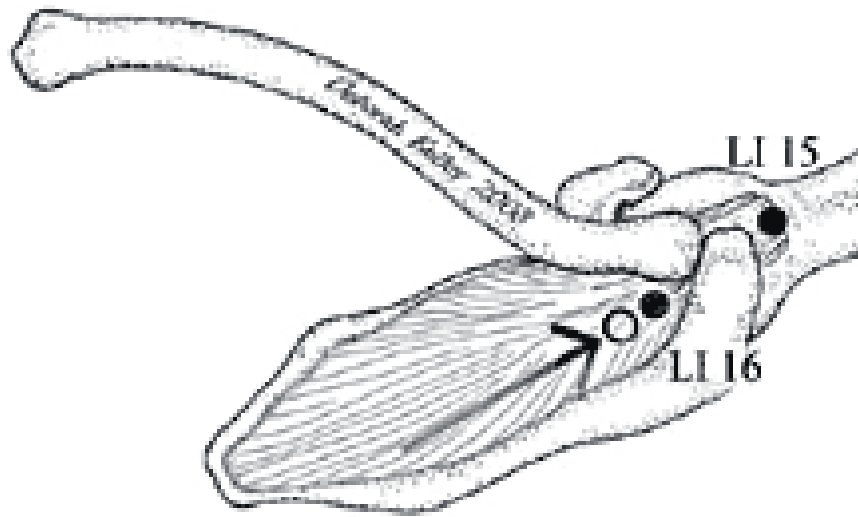
Shoulder Pain: The Supraspinatous Muscle

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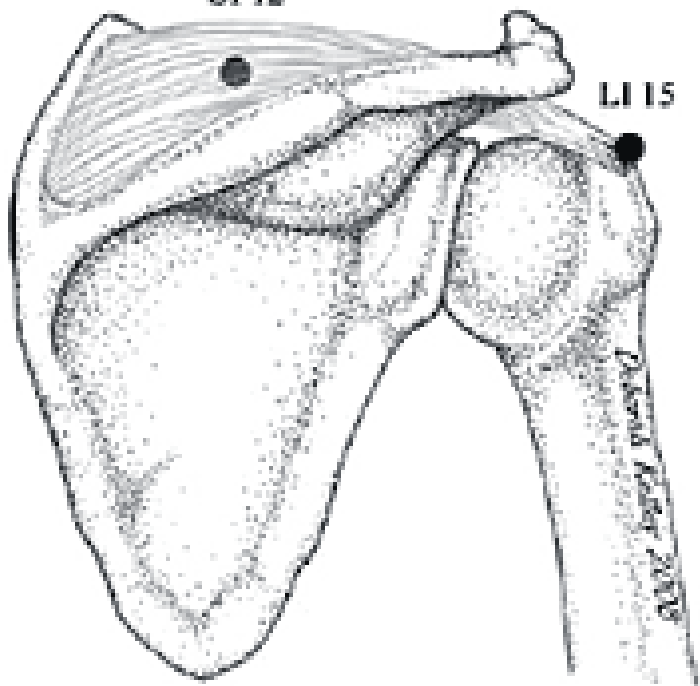
As a practitioner of acupuncture for more than 25 years, there is no single injury I find more rewarding to treat than shoulder pain due to supraspinatous tendonitis. I was fortunate enough to have studied trigger points with Dr. Janet Travell early in my career. Her work on myofascial pain syndromes changed the way I think about acupuncture and Chinese medicine, and has led to many of the treatments and techniques that I use in clinical practice.

The supraspinatous muscle is one of the four muscles of the rotator cuff, and the **most common cause** of shoulder tendonitis.¹ I would go further to suggest that the supraspinatous is the most common diagnosis in shoulder pain from all causes. This is probably due to its **precarious location** beneath the boney acromion, between the points LI 16 and LI 15.² What makes this problematic for the acupuncturist is that pain from the supraspinatous muscle often refers to the deltoid region of the shoulder, and occasionally distally down the arm and forearm. This deltoid region pain leads many practitioners to a diagnosis of Large Intestine (*yang ming*) and San Jiao (*shao yang*) disorders, resulting in treatments that rarely suffice.

The supraspinatous is an abductor, so activities with the arm lifted to the side rely on this muscle. Injury is seen in movements with overhead motions, such as those in racquet sports, swimming, and throwing in baseball and football. But you don't need to be involved in sports to have supraspinatous pathology. Hairdressers, painters, and even those using a computer and keyboard whose arms are in a prolonged state of abduction may develop symptoms. With an acute strain, the trauma often occurs with heavy lifting, a fall while snowboarding, or an outstretched arm in protection from a cycling crash. But don't be limited to these causes; I had a patient with a tear of the supraspinatous from angrily hitting the ground with her golf club after a bad shot.



SI 12



The patient complains of shoulder pain, usually in the anterior lateral, lateral and posterior lateral region of the deltoid. It is often dull and diffuse, difficult to locate, and frequently "comes and goes." There may be pain at night, especially while sleeping on the affected shoulder. Another characteristic symptom is sharp paroxysms of pain with certain movements involving abduction (lifting the arm to the side). It is not uncommon to hear that it hurts to put an arm into the sleeve of a coat or reaching to the back seat of a car. This is due to the impingement of the tendon under the bony acromion.

Supraspinatous dysfunction with its resulting pain syndrome is due to various pathologies within the muscle-tendon unit. Lets look at each separately:

The belly of the muscle: The **origin and the belly** of the supraspinatous are in the suprascapular fossa, in the region of the acupuncture point SI 12. This is the site of the trigger point as well as the motor point.³ In the myofascial explanation of pain, Dr. Travell describes active trigger points in the belly of the muscle at SI 12, contributing to the predictable referred pain pattern in the deltoid region. Palpation of the suprascapular fossa may reproduce pain and reveal taut fascial bands of the muscle. This zone can extend medially to SI 13, as well as 1 to 3 cm lateral to the text location of SI 12.

The sub-acromial portion of the tendon: The muscle-tendon junction is at the lateral aspect of the suprascapular fossa, in the region of the point LI 16. The supraspinatous tendon must pass under the acromion, and this narrow fossa is not particularly forgiving. Many patients with tendonitis in this part of the muscle experience what is termed "impingement syndrome." With those overhead arm movements and other positions of abduction, the swollen tendon gets impinged under the bony acromion, causing the paroxysms of sudden sharp pain. It should be noted that the pain from impingement is difficult to locate with palpation, as it is deep to the bone between LI 16 and LI 15.

The tendinous attachment: The supraspinatous tendon attaches at the greater tubercle of the humerus, in the region of LI 15 and sometimes posterior towards SJ 14. Both inflammation and possible tears can occur to the tendon at this site. If there is localized pain with palpation in this region, suspect supraspinatous strain. The practitioner should also keep in mind that deep to the tendon is the sub-acromial bursa, which, if inflamed, will probably present with tenderness on palpation. While at the lateral shoulder, you should palpate the deltoid region where the patient reports pain. You probably will not be able to find *ah shi* points that correspond to the symptoms described by the patient. However, be aware that the deltoid, also a muscle of abduction, compensates for the distressed supraspinatous and may present with some tender areas. Be cautious, as these may very well lead you away from the primary problem, which is rarely the deltoid.

Several tests may confirm what you already may suspect after hearing the patient's symptoms and palpating the shoulder. The "empty can" test is easy to perform, using resisted abduction to assess the supraspinatous muscle and its tendon. With the patient standing, both arms are raised laterally at 90 degrees of abduction (parallel with the floor). Move the patient's arms about 30 degrees anterior, in a forward direction. Then, place their arms in full internal rotation by pointing the thumbs down. Think of this as the patient holding an "empty can" of their favorite drink. Ask the patient to abduct (push in an upward direction) while you apply downward pressure on the forearm just proximal to the wrist. If there is pain and/or weakness, the supraspinatous is likely involved in the injury. Note that there are various other methods to test this muscle that all involve abduction with resistance.

Also simple and quick is the "arc of pain" test. If it reveals discomfort around 90 degrees of abduction, tendonitis and impingement are probable. Have the patient stand with their arms adducted to the side. The patient then slowly abducts the arm of the injured shoulder by raising it laterally. If pain occurs with active abduction during the arc from approximately 70 to 110 degrees, the test is positive. When the arm is parallel with the floor, it is at 90 degrees of abduction. Pain will occur above and below this level.

In summary, shoulder pain due to supraspinatous dysfunction is very common in the clinic. You will see it in athletic community, as well as in many patients more than 50 years old, whether or not they are active. Diagnosis is easy when it is an acute injury from a definitive trauma. Chronic cases due to repetitive stress may seem more difficult to assess, as the causes appear quite benign. However, most patients present with some, if not all, of these signs and symptoms: dull or diffuse pain in the deltoid region of the shoulder; sudden, sharp pain with certain movements of abduction; pain and taut muscle bands in the belly of the supraspinatous at SI 12; supraspinatous weakness and/or pain with resisted abduction; and a positive arc of pain.

Acupuncture treatment is frequently successful, as long as damage to the tendon is not severe. Your treatments need to be precise; the belly of the muscle at SI 12, and the tendon between LI 16 and LI 15, are the usual sites of local needling. Treatment to the adjacent muscle, the infraspinatous, at SI 11, may benefit. Of course, you may need to use one or more distal points to complete the protocol. If the patient does not respond, don't hesitate to refer them for an orthopedic evaluation. Acupuncture may not be appropriate for some cases where the injury is extensive.

References

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3. Simons DG, Travell JG. *Myofascial Pain and Dysfunction: The Trigger Point Manual, Vol. 1, (The Upper Extremities)*. Williams & Wilkins, 1983, pp 368-9.

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