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Common Injuries to the Neck and Upper Extremity

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COMMON INJURIES TO THE NECK AND SHOULDER

Treatment and Assessment of Common Musculoskeletal Injuries

The musculoskeletal system can be likened to a pulley and lever system in which the key to structural balance is in an equal pull by opposing muscle groups from each side of the joint. An imbalance between the forces such as, adaptive shortening on one side, to a stretch weakness on the other, usually results in a difference of range of motion and muscular strength. This discordance between the antagonist and agonist muscle groups predisposes the musculoskeletal system to injury and soreness. In this lecture, we will be discussing some of the many musculoskeletal injuries commonly associated with repetitive activity such as:

- Localized Neck Pain
- Spondylosis or Degenerative Joint/Disc Disease: Cervical Spine
- Muscle Tension Headache
- Supraspinatus Tendinitis
- Impingement Syndrome
- Bicipital Tendinitis
- Subacromial Bursitis
- Infraspinatus Tendinitis
- Subscapular Pain

Chronic or Overuse Injury

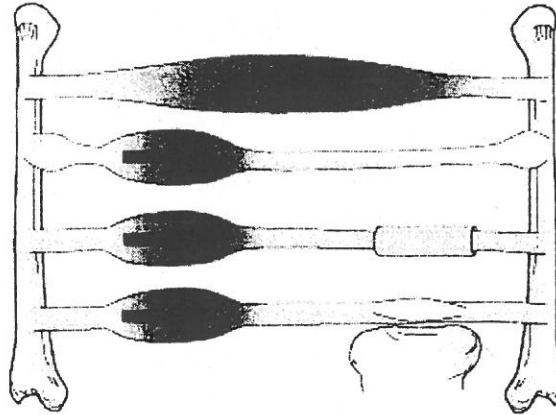
Most musculoskeletal injuries show a patterning of a virtual tug-of-war between opposing agonist and antagonist muscle groups that creates undue stress on the joints, ligaments and muscles. Usually, one muscle or muscle group is found to be hypotonic and lengthened, while the opposing antagonist muscle is short and hypertonic. Human movement depends on the balance between the agonist and antagonist muscle groups in their role of supporting and moving the joints of the body. If the balance is lost and the antagonist muscles are unable to elongate, becoming adaptively shortened, this can create a pattern of tense, contracted, ropy, fatigued fibrous tissue that restricts joint range and/or quality of movement.

Overuse syndromes develop when a body part is exposed to biomechanical stress that exceeds the body's inherent capacity to repair and adapt. Tendons and ligaments are the primary soft tissue involved in overuse injuries from tissue that has become overwhelmed as the regenerative process cannot keep up with the repetitive stress. Since both the biomechanical stress and the capacity for repair can vary tremendously from one person to the next, these conditions are both difficult to predict and can be challenging to treat. Systemic assessment using the Eight Principles as well as any zang-fu dysfunction affecting the jing-luo enhances the treatment outcome. Imbalanced Qi and Blood combined with forces that exceed the body's present level of structural strength and ability to repair will create an eventual chronic injury. The result is a symptomatic breakdown of tissue with the patient presenting with pain from a non-traumatic injury.

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Chronic repetitive micro-trauma is the underlying cause of overuse injuries. The source of micro-trauma must be recognized and treated in order to prevent further tissue breakdown and chronicity.

Shortened Muscles:



Tendinopathy and Enthesopathy:

Motor Point Acupuncture: An Eclectic Ah-Shi Point

A motor point is defined as the most electrically excitable area of the muscle, and represents the greatest concentration of nerve endings. Motor points are not exact anatomical points, but follow a fairly fixed pattern of location. These points may be identified clinically as the site where a twitch may be evoked in response to minimal electrical stimulation without producing contraction elsewhere in the muscle. In other words, a motor point has the lowest resistance to electrical conductivity. Electrodiagnosticians, physical therapists and other clinicians, have used electrical stimulation on motor points for decades to diagnose and treat neuromuscular disease. These points are located on the skin over the muscle and correspond approximately to the level at which the nerve enters the muscle belly, the neuromuscular junction or zone of innervation. Acupuncture to the motor point seems to "reset" the dysfunctional muscle spindle that is causing abnormal muscle function and reflexive spasm. The acupuncture needle is one of the best physical therapy modalities to use, as it releases muscle shortening swiftly and precisely when inserted into the motor point.

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Palpating the Motor Point

The practitioner will find the motor point in a tight ropy band on or near (usually within the size of a nickel) the locations described in this text. Using a cross-fiber palpation technique on the tight palpable band, the tender zone of innervation is easy to find as it is the most tender point in that region. The practitioner needs to be aware of a few signs which may be present when assessing the motor point that provide information as to appropriate needle technique for successful treatment.

Excess (Shi Zheng)

The motor point is clearly found in a tight ropy muscle band that is painful upon palpation. This point will be the most tender area in the region. This condition may also be found with Cold or Hot signs.

Deficiency (Xu Zheng)

The motor point may or may not be easily palpated within the tight, ropy band but feels better with palpation. The patient may describe the area as feeling weak. This condition may also be found with Cold, Hot or Damp signs.

Dampness (Shi Xie)

A painful point will be felt by the patient but objectively the tight ropy band is cannot be clearly delineated upon palpation and has a spongy or swollen feeling. Deep needle insertion is contraindicated in these cases. Superficial needling described below with moxibustion will eliminate the Dampness quickly, and deeper treatment may then be administered later, if applicable.

Hot conditions (Re Zheng)

If the temperature feels warm compared to other sites around the region, the appropriate needling is shallow. Heat is usually indicative of the extroversive, or expanding, nature of Yang, characterized by accelerated circulation. A shallow needling insertion with a reducing method is often indicated. This can be seen in cases of acute muscle injury.

Cold conditions (Han Zheng)

A cold feeling to the motor point region indicates decreased metabolic function and Qi arrival may be slower in the meridians. A deeper needling method is often used with moxibustion.

Needling the Motor Point

Qi is the power of the nerve. 38 Obtaining the Qi sensation, a dull aching or distending pain, or eliciting the local twitch response, is crucial to an effective treatment and appears to "reset" the muscle to its normal length. The local twitch response can be observed with superficial muscles; however, for deeper muscles, the twitch obviously cannot be seen. On occasion, when the motor point within deep muscles, such as the teres minor, supraspinatus or piriformis is stimulated the twitch is strong enough to be felt through the superficial muscle and may even move the extremity. More often than not, the practitioner must rely on the "needle grasp" sensation when needling the deeper muscles and/or the patient informing the practitioner of the twitch sensation.

Needling into the motor point will elicit a dull-aching sensation or "De Qi" in Chinese medicine. Accompanying this sensation, the muscle may jump or fasciculate, which is

Often found together

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termed a "local twitch response." This response is important to note, as it indicates that the muscle has started to relax. The local twitch response is due to the insertion and twirling of the acupuncture needle as it stretches the muscle fibers, thus stimulating the muscle spindles to initiate a reflexive muscle contraction.^{30,31} This contraction has a seemingly homeostatic effect as range of motion normalizes and muscular strength increases. In a clinical study of 68 shoulder pain cases that also exhibited a decreased range of motion, it was found that after acupuncture needling to the motor points of the opposing agonist and antagonist muscle groups, the range of motion increased. In addition, in 86 % of these cases, the external rotator muscles were painful and weak upon resisted manual muscle testing, and were strengthened with less pain using acupuncture treatment to the motor points.²¹

When the needle is retained, the practitioner will often notice that the initial angle of the needle has changed as the muscle fibers elongate and continue to relax. This can be observed as the needle has moved into another direction. It is much easier to relax a shortened muscle using motor point needling than it is to strengthen an elongated muscle. By releasing the shortened muscle, the elongated muscle will automatically decrease in length and situate itself in a better position to hold the new length. At times, the lengthened antagonist muscle will develop into a spasm once the shortened agonist muscle has been released. It is a good practice to needle both opposing muscle groups together in order to utilize the neural relationship shared by the agonist and antagonist muscles.

Depth of Insertion

Appropriate depth of insertion depends on the depth of the target tissue, the strength of the patient, the nature of the disease, and the experience of the practitioner to know what is best for the circumstance. It is generally the case that a deficient condition will respond better to superficial needling; conversely, deeper insertion will obtain better results for an excess condition.

It is often the case that there will be a deficient patient with an excess motor point condition. Therefore, there is confusion and contradiction of the general rules of needling. Through experience, practitioners know what is most important based on the diagnosis and which seems to be more effective in consideration of individual circumstances. For example, patients with chronic problems as in recalcitrant back pain usually exhibit weakness of Kidney Qi combined with excess of certain musculature. When treating weakness, shallow treatment is indicated since deeper needling tends to be stronger and more profound. But yet, chronic conditions are functionally deeper by having adapted over time and respond better to deep needling. Deep needling for a weak patient is not contraindicated if the patient does not mind the sensation; in addition, strength of stimulation can be changed with a thinner needle. If the motor point is deep to palpation and excess in nature, needling deeply to obtain Qi will benefit the patient. Fewer needles can be used on a weak patient with reinforcing methods used on other appropriate points based on the differential diagnosis. When in doubt, the pulse from the initial assessment should not become weaker or more imbalanced. If so, the needle technique chosen is inappropriate for that patient.

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Needling Methods

The method of needle stimulation is important for the promotion of the patient's health. It is essential that the acupuncturist have a good understanding of the appropriate forms of acupuncture so as to best treat each individual condition. Only then can the body's homeostatic capabilities come into play; deficiencies strengthened and excesses drained. Using ancient needling methods is not an overzealous attempt to revive an ancient medical system. It is to acknowledge the work of those before us, respecting the wisdom of a 5,000 year-old medicine that has lasted and continues to gain strength even in this modern day era. Although, needle techniques developed in the past to treat patients who lived in a different time must be critically examined regarding their application for the patient in today's world. Qi is consistent and can be manipulated with acupuncture needle techniques; it is the cause and manifestation of physiological imbalances that differs from the patient of today compared to the patient of past centuries.

The techniques used below must be used flexibly. The importance of the needling site, the location and the condition of pathology, and the physiological characteristics of the patient must all be considered.

Raising and Thrusting (Ti Cha)

This refers to an up-down motion once it is inserted beneath the skin. Once the Qi sensation is obtained, the needle is lifted up and down approximately .5 cun to create a stronger sensation. The more active the motion, the stronger the stimulation.

Twirling or Rotating (Nian Zhuan)

Once Qi has been obtained or is close to the needle, the practitioner twirls or rotates the needle back and forth to create a stronger sensation. A 360° rotation is contraindicated as the muscle fibers may go into spasm. This technique is often used with the raising and thrusting method.

Reducing method (Xie Fa)

There are many techniques to disperse stagnate Qi and Blood (pinyin). This method is primarily used for the motor point that is in an excess condition with the consideration of constitution of the patient.

- Rotating the needle rapidly with large amplitude.
- After the needle is inserted to a certain depth and Qi has been obtained, lifting the needle forcefully and rapidly while inserting the needle gently and slowly.

Reinforcing method (Bu Fa)

This method is primarily used for the motor point that is in a deficient condition with the consideration of constitution of the patient.

- Rotating the needle gently and slowly with small amplitude.
- After the needle is inserted to a certain depth and Qi has been obtained, lifting the needle gently and slowly while inserting the needle forcefully and rapidly.

Needle Technique

Clinical application of acupuncture to motor points depends on such factors as the status of the pathology and the constitution of the patient. The following techniques described below are from the Inner Classic and have been adapted to motor point needling from clinical experience.

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Superficial Needling of the Motor Point

The definition of superficial needling is the insertion of the needle into the skin or subcutaneous tissue without penetrating the muscle layer.

Hairline needling (Mao Ci)

This technique is used for numbness of the skin from radiculopathy or paresthesia sensations manifesting as Blood deficiency (Xue Xu) and Cold. (Han Zheng) The needle is inserted into the skin rapidly but not to the muscle layer. Needle stimulation is directed to and around the motor point region with a continual light tapping technique. This technique is used on myotomal motor points affected in addition to the affected meridian topography. *- From spine to pt., along nerve & meridian*

Shallow needling (Zhi Ci)

The needle is inserted perpendicular or obliquely just under the skin to touch the superficial fascial layer covering the underlying muscle tissue. This a useful technique for needle sensitive patients with superficial muscle spasms. For example, needling GB 21 (Jianjing) the needle just passes the skin to enter the fascial layer of the upper trapezius muscle.

Deep Needling of the Motor Point

The definition of deep needling is the insertion of the needle into the muscle tissue slightly deeper than the superficial needling, or as deep as to the bone.

Joining Valleys (He Gu Ci)

This is the most common way of obtaining Qi in the motor point region. The needle is inserted perpendicular to the depth of assessed and palpable target tissue. The needle is then withdrawn to the subcutaneous level and inserted again in another direction. This technique is repeated to a new site with each new insertion aimed as if trying to touch each number of a nickel-sized clock. The needle should not bend nor be inserted in the same direction more than once. This technique can be used with either shallow or deep insertion depending on the assessed target tissue.

Green Turtle Searching for the Point (Cang Gui Tan Xue)

This technique is much like Joining Valleys (He Gu Ci) although the difference is that the needle is slowly inserted at the motor point in three stages: superficial, medium and deep, with a quick withdrawal. This technique is performed in various directions, as if aiming for the numbers on an hour clock. Be sure that the needle tip is withdrawn to the superficial level, and then redirected to a new direction and depth with each insertion, until the desired effect is achieved.

Other Needle Techniques

Multiple Needle Puncture (Qi Ci)

This technique is to have 2-3 needles inserted into one site. This is useful treatment for lateral epicondylitis applied at the insertion site of the extensor muscles. This method is used for Cold conditions (Han Zheng). Moxibustion often included into the prescription.

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Meridian Ashi Needling (*Jing Luo Ci*)

Ashi points are needled along the affected meridian. For example, in lateral epicondylitis cases, the large intestine meridian will often have many points located above and below the elbow. This method opens the meridian and disperses pain.

Multiple Needles in a Line (*Pai Ci*)

This technique can be used in conjunction with the motor point needling or in painful tight palpable bands. Three to five needles are inserted perpendicular into a tight palpable band forming a line. It's best to follow the myofibril line as in rectus femoris needling for patellar tendinopathy.

Surround the Dragon (*Wei Long Ci*)

An even number of needles is used to surround the anatomical tissue or area of pain. Used commonly with cysts, masses or patellar conditions.

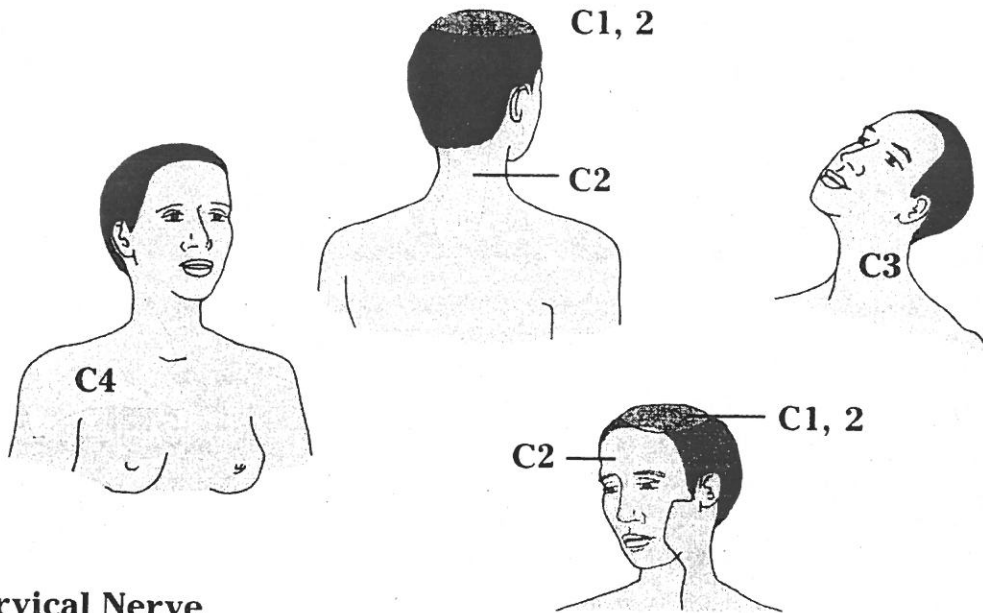
Near Needling (*Bang Ci*)

This technique is the insertion of one needle into a point with another needle inserted obliquely angled toward the first needle so that the tips of the two needles meet. This can strengthen the therapeutic affect of the acupuncture treatment. This is commonly used in plantar fasciitis conditions when needling the extra point Shimian located at the medial tubercle of the calcaneus.

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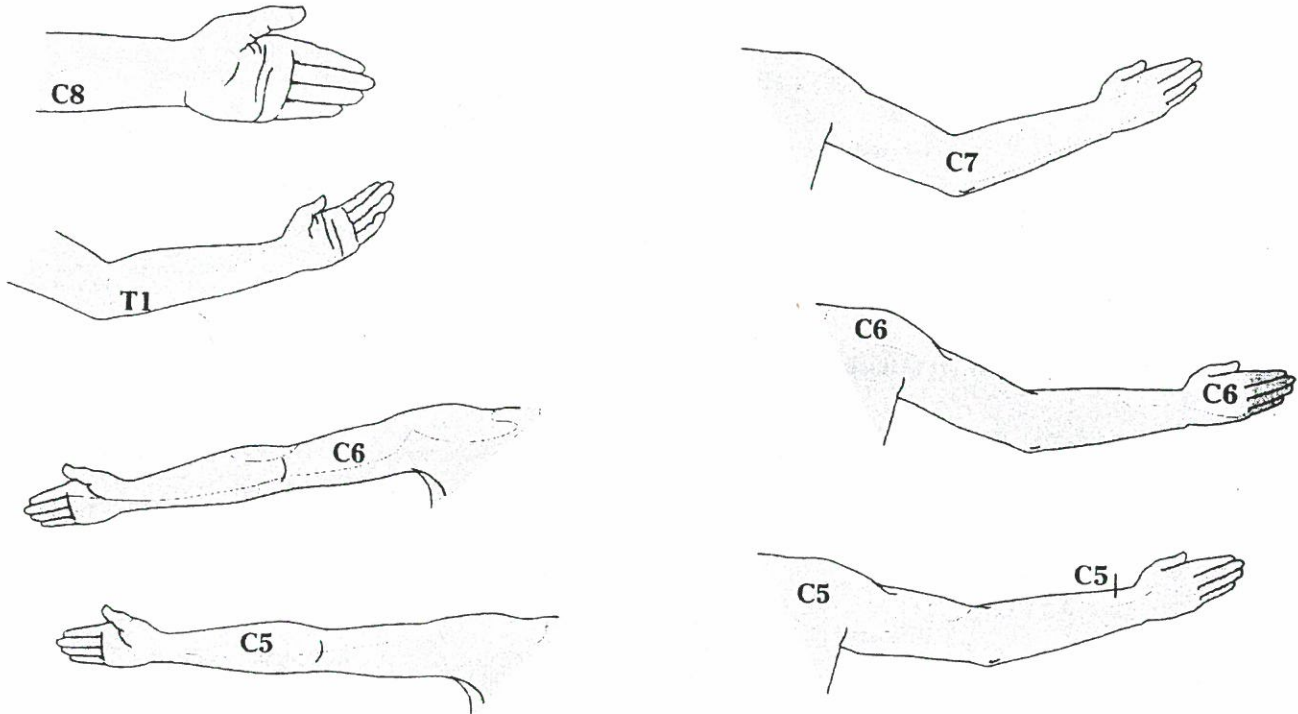
Orthopedic Evaluations:

- Cervical Nerve Root Dermatomes
- Foraminal Compression Test
- Jackson's Test
- Spurling's Test
- Bakody's Sign or Shoulder Abduction Test
- Distraction Test



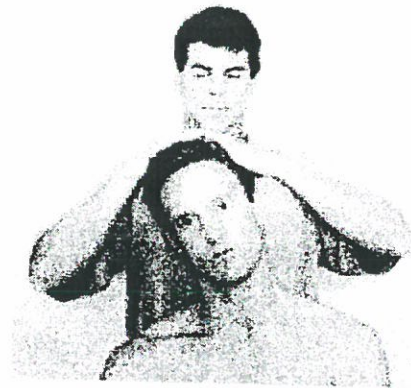
**Cervical Nerve
Root Dermatomes**

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Foraminal Compression Test

With the patient seated and the head laterally flexed to the side approximately 20°, both of the practitioner's hands are placed on top of the patient's head while gently applying increasing pressure in a downward manner. A positive test will elicit radiculopathic symptoms affecting a dermatomal distribution. Neck pain is not a positive test, although it is noteworthy and denotes a possible myospasm or facet joint impingement causing the pain.



Jackson's Test

This test is a modification of the foraminal compression test. The patient rotates the head to one side as both of the practitioner's hands are placed on top of the patient's head while gently applying increasing pressure in a downward manner. Radiation of pain down the arm is a positive test, and will usually provide clues as to which spinal segment is affected from the dermatomal distribution.



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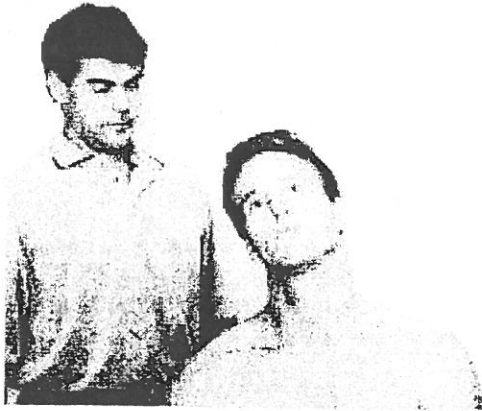


Figure A



Figure B

Spurling's Test

This test is a modification of Jackson's and Foraminal Compression in which Spurling's Test is the most demanding on the lower cervical spinal segments. The patient extends the head backward and rotates it to one side. At times, this position alone will elicit a radiation of pain down the arm (Fig. A); if not, then both of the practitioner's hands are placed on top of the patient's head while gently applying increasing pressure in a downward manner (Fig. B).

Bakody's Sign or Shoulder Abduction Test

With the patient in a seated or supine position, the patient is asked to place their hand or forearm on top of their head to rest. The arm may also be passively placed on top of the head. A positive test is for a reduction or elimination of the patient's parathesia symptoms. A relief in symptoms is due to the slackening of the nerve pathway that decreases the pressure on the lower cervical nerve roots.



Distraction Test

With the patient seated, the practitioner places one hand under the patient's occiput and the forearm from the other arm under the patient's chin. The practitioner lifts the head straight up gently holding for 20-30 seconds; a positive test is a reduction or elimination of the radiculopathic symptoms indicating decreased pressure on the nerve root.



THE CERVICAL SPINE

Localized Neck Pain

Localized neck pain presents itself as limited range of motion and can be from an array of causes disrupting activities of daily living for active patients young and old. This section discusses muscles that may be shortened or in spasm which are causing pain and limited range of motion due to muscle imbalance, muscle spasm from stress or a mild "kink" in the neck. This information may also be utilized to assess muscle imbalance in other cervical syndromes to assist the practitioner in developing a treatment protocol. The muscles listed in this section have target points or ah-shi points, to examine, palpate and treat that have been clinically corroborated to release muscle tension and free up limited range of motion.

Orthopedic evaluations listed in this chapter can help the practitioner to rule out any other causes of pain and limited range of motion. It is essential to determine whether the pain is localized or radiating. Limited range of motion must be differentiated from other more serious causes for example, an acute onset accompanied with fever (possible meningitis), acute torticollis, acute trauma such as whiplash, an inflamed disc or degenerative disc processes, in addition to screening for radiculopathy.

Localized neck pain may be accompanied by non-specific paresthesia sensation that travels along acupuncture meridians. Orthopedic exams do not reproduce the paresthesia, but palpation to the assessed target tissues mentioned below may elicit the sensation. Pain that radiates into the upper extremity subjectively or objectively frequently stems from nerve involvement or soft tissue indurations referring along acupuncture meridians. (see other cervical syndromes in this chapter).

Often times, vertebral misalignment may accompany the limited range of motion. If results do not come quickly or progress is not made from sequential treatments, bony manipulative techniques may be needed.

Assessment -

- Limited range of motion in forward flexion, lateral flexion, rotation or extension. See Treatment section below.
- Point specific or localized pain in the soft tissue of the neck
- Possible paresthesia sensation when palpated, not reproducible with cervical nerve tests.

TCM Pattern

- Wind-Cold-Damp Obstruction (Feng Han Shi Bi): external Wind-Cold-Damp pathogens enter local channels and collaterals causing pain that is deep, dull, or aching. Stiffness, myospasms on one side of the neck, tenderness or pain in the shoulder, arm or upper back may also be present. Pain is better with warmth, and worse with cold or weather changes.

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- Qi and Blood Stagnation (Qi Zhi Xue Yu): local stagnation of Qi and Blood in the channels and collaterals due to poor posture or body mechanics causes pain that is sharp, fixed in location, and worse with movement. There may also be stiffness and myospasms.
- Gallbladder Constraint and Small Intestine Disharmony (Dan Jing Yu Zhi, Xiao Chang Shi He): digestive disturbances in the Gallbladder or Small Intestine organs may cause energetic disharmonies that can manifest as pain and stiffness in their respective channels along the neck.
- Liver Qi Stagnation (Gan Qi Yu Zhi): Liver Qi Stagnation causes neck pain that is worse with stress or emotional upset. Pain can be severe, distending, worse with heat or pressure, and may follow the Gallbladder channel.
- Qi and Blood Deficiency (Qi Xue Bu Zu): insufficiency of Qi and Blood results in lack of nourishment to the muscles and tendons leading to pain that is dull, empty, and better with rest. There may be muscle spasms, decreased movement, weakness in the arms or hands, dizziness, or fatigue.

Acupuncture

Effective acupuncture points and combinations to choose from:

- SI 3 (Houxi), GB 21 (Jianjing), GB 20 (Fengchi), DU 14 (Dazhui), LU 7 (Lieque), UB 12 (Fengmen), UB 13 (Feishu), SJ 5 (Waiguan) - expel Wind-Cold-Damp from the channels and collaterals, disperse stagnation, and alleviate pain.
- LI 4 (Hegu), LIV 3 (Taichong), SI 11 (Tianzong), GB 30 (Huantiao), SP 6 (Sanyinjiao), UB 17 (Geshu), UB 18 (Ganshu) - promote Qi circulation, eliminate Blood stasis, and remove channel obstructions.
- GB 40 (Qiu xu), SI 4 (Wangu), UB 19 (Danshu), UB 27 (Xiaochangshu), GB 34 (Yanglingquan), SI 8 (Xiaohai), ST 39 (Xiajuxu), ST 36 (Zusanli) - harmonize Gallbladder and Small Intestine.
- LIV 3 (Taichong), LI 4 (Hegu), LIV 14 (Qimen), GB 34 (Yanglingquan), UB 18 (Ganshu), UB 47 (Hunmen), GB 21 (Jianjing) - smooth and harmonize Liver Qi, move stagnation.
- ST 36 (Zusanli), UB 17 (Geshu), UB 20 (Pishu), SP 6 (Sanyinjiao), LIV 8 (Ququan), REN 6 (Qihai), REN 4 (Guanyuan) - tonify Qi and Blood, nourish muscles and tendons.

Motor Points

Motor points are provided in the section below.

Moxibustion

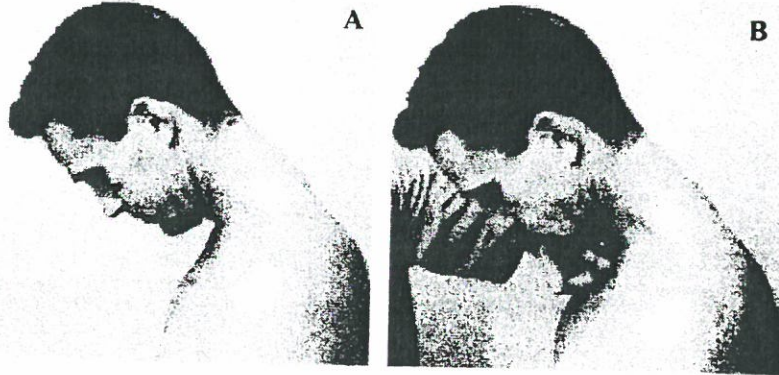
- Pole or direct moxa on Huatuojiashi points, or on listed points below to relax muscles and move stagnation. Contraindicated if heat signs are present.
- Pole moxa on GB 21 (Jianjing), GB 20 (Fengchi), DU 14 (Dazhui), UB 12 (Fengmen), UB 13 (Feishu) to expel Wind-Cold-Damp from the channels and collaterals.
- Pole or direct moxa on ST 36 (Zusanli), UB 17 (Geshu), UB 20 (Pishu), SP 6 (Sanyinjiao), LIV 8 (Ququan), REN 6 (Qihai), REN 4 (Guanyuan) to tonify Qi and Blood, nourish muscles and tendons.

THE CERVICAL SPINE

Each muscle listed below contains a treatment point. Assess these points through palpation monitoring reactivity and tenderness. Choose the most reactive points involved that may be added to the treatment protocol developed from the differential diagnosis. Be aware not to over needle one region by balancing with distal needling.

Forward Flexion

Position: patient flexes the neck (Photo A). The normal range of motion should be the chin being able to touch the chest. If the chin is unable to touch the chest, measure the distance of the restriction. One finger breadth under the chin is



equal to about 10°. For example, if the practitioner can place two fingers under the chin of the patient's flexed head, then the patient is - 20° of complete cervical flexion (Photo B).

Muscle Shortening: muscles that may be preventing full range of motion are the splenius capitis and cervicis, semispinalis capitis and cervicis, iliocostalis cervicis, longissimus capitis, upper trapezius and interspinalis muscles.

Treatment: needle the tender motor or extra points within the tight, palpable band of the affected muscles.

Splenius capitis: many points can be used to needle this muscle. Consider the motor point located slightly inferior and lateral from GB 20, where the needle depth is .75-1 inch toward the tip of the nose or contralateral UB 1 (Jingming). Consider the insertion of this muscle by needling GB 12 (Wangu) and/or SJ 16 (Tienyu) as a possible adjunct.

Splenius cervicis: needle the extra point bailao, located 2 cun superior and 1 cun lateral from DU 14 (Dazhui).

Semispinalis capitis: needle the motor point UB 10 (Tianzhu) 1 inch perpendicular. Palpate the extra point Xinshi, located 1 cun lateral from the lower border of the spinous process of C3. Needle perpendicular 1 inch if tender.

Semispinalis cervicis: Needle the huatuojiaji points 1-1.5 in. perpendicular to affect this muscle.

Longissimus capitis: needle the extra point Jingzhong located 2 cun below GB 12 (Wangu), near the posterior border of the SCM. Enters the splenius capitis, needle depth .5 inch. Deeper insertion enters the longissimus capitis .5-1 in. Caution: the vertebral artery lies beneath this muscle between the vertebral transverse process.

THE CERVICAL SPINE



Lateral Flexion

Position: patient tries to bring the ear down toward GB21 (Jiangjiang). The normal range of motion is 45°.

Muscle Shortening: muscles that may be preventing full range of motion are the contralateral scalenes anterior, posterior and middle, sternocleidomastoid, splenius capitis and cervicis, iliocostalis cervicis, upper trapezius.

Treatment: needle the tender motor or extra points within the tight, palpable band of the affected muscles.

Scalenes anterior: needle the extra point Jingbi. Locate a tender area 1.5 inches above the medial third of the upper border of the clavicle, at the posterior margin of the clavicular head of the sternocleidomastoid muscle. With digital pressure from anterior to posterior, find the point that refers down the arm. Pressure is being applied to the anterior scalene that lies above the brachial plexus. Needle perpendicular into the anterior scalene slowly until a parathesia sensation is reported by the patient. This point is just medial to the internal jugular vein and slightly above the apex of the lung. **Caution is advised !!!**

Scalenes middle: needle the extra point Dijia located half way between the nape of the neck and the tip of the mastoid, 1 cun posterior from the posterior border of the SCM. Enters the motor point at the belly of the levator scapulae. To reach the middle scalene, angle the needle toward the laryngeal prominence .5 -1 cun.

Scalenes posterior: needle the extra point Dijia located half way between the nape of the neck and the tip of the mastoid, 1 cun posterior from the posterior border of the SCM. Enters the motor point at the belly of the levator scapulae. To reach the posterior scalene, angle the needle in a slight inferior and posterior direction toward the vertebral transverse process 1 inch.

Sternocleidomastoid: needle the motor point Luoqing located slightly above LI 18 (Futu). Insert the needle from SI 16 (Tianchung) in an oblique direction .5 in. to cross-fiber the SCM.

Splenius capitis: many points can be used to needle this muscle consider the motor point located slightly inferior and lateral from GB 20, where the needle depth is .75-1 inch toward the tip of the nose or contralateral UB 1 (Jingming).

Splenius cervicis: needle the extra point bailao, located 2 cun superior and 1 cun lateral from DU 14 (Dazhui).

Iliocostalis cervicis: 2 cun superior from DU 14 (Dazhui) and 2 cun lateral or 1 cun lateral to Bailao. Needle depth is 1 inch, oblique angle directed toward the vertebral transverse process. **Caution: the vertebral artery lies beneath this muscle between the vertebral transverse process.**

Upper trapezius: needle GB 21 (Jiangjing), the motor point of this muscle. In addition, palpate the anterior fibers of the upper trapezius by pinching the muscle in the location where the fibers turn in a superior direction to the neck approximately between SI 15 (Jiangzhongshu) and Bailao.

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Rotation

Position: have the patient turn their head left, then right toward the shoulder. The normal range of motion is 80° to 90°.

Muscle Shortening: muscles that may be preventing full range of motion are the contralateral scalenes anterior, posterior and middle, sternocleidomastoid, splenius capitis and cervicis, longissimus capitis and ipsilateral upper trapezius.



Treatment: needle the tender motor or extra points within the tight, palpable band of the affected muscles.

Scalenes anterior: This point is called Jingbi. Locate a tender area 1.5 inches above the medial third of the upper border of the clavicle, at the posterior margin of the clavicular head of the sternocleidomastoid muscle. Push the SCM and jugular vein medially as the tender spot is located, needle perpendicular and slightly medial into the anterior scalene muscle and directly perpendicular for the medial scalene.

Caution is advised!!!

Scalenes middle: needle the extra point Dijia located half way between the nape of the neck and the tip of the mastoid, 1 cun posterior from the posterior border of the SCM. To reach the middle scalene, angle the needle toward the laryngeal prominence .5 -1 cun.

Scalenes posterior: Needle Dijia located 1 cun posterior from the midpoint of the posterior border of the SCM in a slight inferior direction toward the vertebral transverse process 1 inch.

Sternocleidomastoid: needle the motor point Luoqing located slightly above LI 18 (Futu). Insert the needle from SI 16 (Tianchung) in an oblique direction .5 in. to cross-fiber the SCM.

Splenius capitis: many points can be used to needle this muscle; consider the motor point located slightly inferior and lateral from GB 20, needle depth is .75-1 inch toward the tip of the nose or contralateral UB 1 (Jingming).

Splenius cervicis: needle the extra point bailao, located 2 cun superior and 1 cun lateral from DU 14 (Dazhui).

Iliocostalis cervicis: 2 cun superior from DU 14 (Dazhui) and 2 cun lateral or 1 cun lateral to Bailao. Needle depth is 1 inch, oblique angle directed towards the vertebral transverse process.

Caution: *the vertebral artery lies beneath this muscle between the vertebral transverse process.*

Upper trapezius: needle GB 21 (Jiangjing), the motor point of this muscle. In addition, palpate the anterior fibers of the upper trapezius by pinching the muscle in the location where the fibers turn in a superior direction to the neck approximately between SI 15 (Jiangzhongshu) and Bailao.

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Extension

Position: the patient extends their head back from a neutral position as far as they can comfortably. Be aware that the patient performs this action carefully as dizziness may result from vertebral artery occlusion. Pain is often associated with a whiplash accident affecting the sternocleidomastoid, anterior scalene or deep neck flexor muscles. Pain in the upper cervical region usually indicates atlas and occiput compression. Check suboccipital triangle tenderness located in the GB 20 (Fengshi) region and UB 10 (Tianzhu) tenderness.

Muscle Shortening: limited range of motion may be due to occipital pain or dizziness preventing the patient from performing the task. Muscles that may be preventing full range of motion are the sternocleidomastoid, anterior scalene and deep flexor muscles. Note: deep flexor muscles are not discussed below.

Sternocleidomastoid: needle the motor point Luoqing located slightly above LI 18 (Futu). Insert the needle from SI 16 (Tianchung) in an oblique direction .5 in. to cross-fiber the SCM.

Scalenes anterior: needle the extra point Jingbi. Locate the tender area on the posterior border of the sternocleidomastoid muscle approximately halfway between SI 16 (Tianchung) and LI 17 (Tianding). With digital pressure from anterior to posterior, find the point that refers down the arm. Pressure is being applied to the anterior scalene that lies directly above the brachial plexus. The carotid pulse should not be felt. Needle perpendicular, methodically and slowly into the anterior scalene slowly until a paresthesia sensation is reported by the patient. This point is just medial to the internal jugular vein, lateral to the carotid artery and slightly above the apex of the lung. **Caution is advised!**

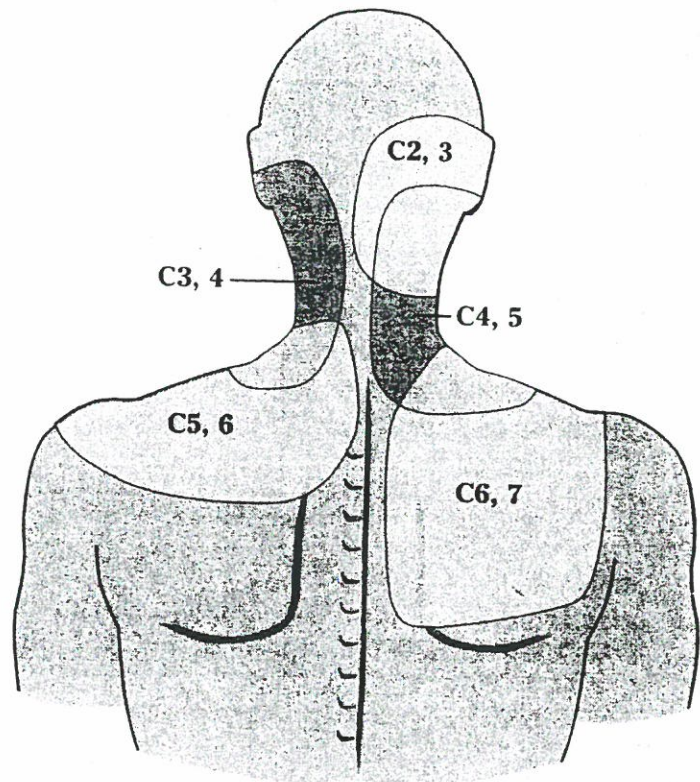
THE CERVICAL SPINE

Spondylosis or Degenerative Joint/Disc Disease

Spondylosis or degenerative joint/disc disease is a chronic and usually progressive degeneration of the facet joints and/or intervertebral discs. The term is also used to describe the degenerative changes of the spine. Commonly spondylosis is accompanied with calcific changes around the periphery of the joint, wearing down of the hyaline cartilage, thickening of the facet joint capsule, dehydration of the nucleus pulposus, narrowing of the intervertebral space, in addition to muscle shortening of the deep paraspinal muscles and facet joint approximation.

Although spondylosis is a natural process of aging and often starts to occur around the age of thirty, it is usually asymptomatic and may result from hypomobility of the vertebrae due to the loss of joint and disc nutrition. The intervertebral discs and hyaline cartilage surfaces of the synovial joints do not have a blood supply. The movement of the body fluids is necessary for these structures to receive their normal nutritional supply. Therefore, loss of mobility contributes to early development of spondylosis. Conversely, joint hypermobility or instability leads to an early onset of spondylosis because of the increase wear and tear on the intervertebral discs and facet joints.

Neurological complications can also be seen due to the foraminal encroachment that sometimes occur. The patient may complain of numbness and tingling or a sensitivity awareness somewhere in the upper extremity. The most common cause of peripheral nerve injury creating radiculopathy is from degenerative changes in the vertebral column and intervertebral disc that affect the nerve root as it exits the intervertebral foramen. Radiculopathy is a term used to describe the pain and discomfort radiating along the peripheral nerve that is coming from the spine. When this parathesia is present, the spine is normally recognized as the origin since the referred pain and numbness shows itself somewhere along the nerve pathway as it travels along its distribution. For example, a parathesia sensation in the thumb and index fingers indicates a possible nerve root



Facet Joint Referral Patterns

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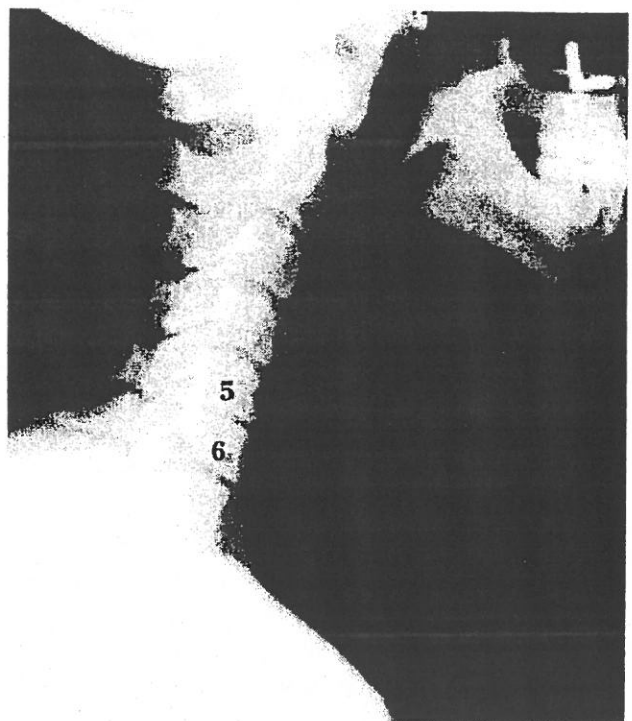
irritation at the C6 level. This can usually be diagnosed between orthopedic, radiologic and electromyographical examinations.

However, with many musculoskeletal complaints, neuropathy may exist when paresthesia signs and symptoms are not present. For example, the patient may complain of pain somewhere in the extremity without subjectively or objectively produced radiculopathic symptoms of numbness and tingling. A radiological examination may show normal and benign degenerative changes at the spinal level which are associated with the patient's pain, and yet, the practitioner will usually notice that various innervated muscles from the affected spinal root are found to be imbalanced. This can be detected by a limited range of motion, muscle weakness and motor points which are tender when palpated. In the majority of cases, when releasing the deep paraspinal muscles by needling the huatuojiaji points, motor point tenderness decreases.

Assessment-

- Range of motion testing: The patient will often have mild-to-moderate limited cervical range of motion in one or another direction.
- The patient may have paresthesia sensations into the shoulder, rhomboid area or down the arm with numbness and tingling into the fingers. Radiculopathic origin may possibly be reproduced with: Jackson's Compression test, Foraminal Compression test and/or Spurling test. The symptoms may be alleviated with Shoulder Abduction test and/or Distraction test.
- Spondylosis will make myotomal motor points on one side of the upper extremity more sensitive than the other side regardless if radiculopathic symptoms are present or not. For example: For C5-C6 pathology, check the motor points of the infraspinatus, supraspinatus, deltoids and biceps brachii for tenderness.
- An X-Ray will often show degenerative processes of the lower cervical vertebrae.

Spondylosis of the C5-C6 segment



THE CERVICAL SPINE

TCM Pattern

- Wind-Cold-Damp Obstruction (Feng Han Shi Bi): external invasion of Wind-Cold-Damp obstructs the flow of Qi in the meridians causing fixed, aching pain. There may be tenderness of the neck, stiffness, reduced range of motion, possible weakness or heaviness in the arms or hands, neck muscles may feel like tight bands. Dizziness, vertigo, or a heavy sensation in the head may be present. Pain is better with warmth.
- Qi and Blood Stagnation (Qi Zhi Xue Yu): long term obstruction of Wind-Cold-Damp, or deficiency of Qi and Blood, causes Qi and Blood stagnation in the channels and collaterals. Pain is sharp, stabbing, distending, and fixed in location. Pain is worse at night and better during the day. There may be numbness or heaviness in the arms or hands.
- Qi and Blood Deficiency (Qi Xue Bu Zu): insufficiency of Qi and Blood results in lack of nourishment to the muscles and tendons leading to pain that is dull, empty, and better with rest. There may be muscle spasms, decreased movement, weakness in the arms or hands, dizziness, or fatigue.
- Liver and Kidney Yin Deficiency (Gan Shen Yin Xue): decline of Liver and Kidney energies leads to deterioration of the bones and tendons over time causing aching, distending, burning pain in the neck, shoulders, or upper back. Structural changes to the vertebrae, swelling in the neck, numbness or weakness in the arms may occur.

Acupuncture:

Effective target tissue needling to choose from:

- Huatuoji points of the affected region. This can be determined by dermatomal sensations or myotomal motor point tenderness. Needle perpendicular 1-1.5 in. on each side of the affected vertebrae.
- Huatuoji points of T4 - T6: origin of many deep neck extensor muscles. Usually found to be tender with neck pathologies.
- Xinshi: 1 cun lateral from the lower border of the spinous process of C3 needle perpendicular 1 inch.
- Xiashinshi: .5 cun below xinshi.
- Dijia: located half way between the nape of the neck and the tip of the mastoid, 1 cun posterior from the posterior border of the SCM. There are three directions of needling to affect different target tissues:
 - 1) To affect the motor point of the levator scapulae insert the needle perpendicular .5-1 in.
 - 2) To reach the middle scalene, angle the needle towards the laryngeal prominence 1 in.
 - 3) To reach the posterior scalene, angle the needle in a slight inferior direction towards the vertebral transverse process 1 in.
- Levator scapulae needling: to release this muscle, needle Dijia as described above with a perpendicular insertion. Next, needle the attachment of the levator scapulae located at the superior medial border of the scapula in a cross-fiber direction.

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Effective acupuncture points and combinations to choose from:

- SI 3 (Houxi), GB 20 (Fengchi), DU 14 (Dazhui), LU 7 (Lieque), UB 12 (Fengmen), UB 13 (Feishu), ST 40 (Fenglong), SP 9 (Yinlingquan) - expel Wind-Cold-Damp from the channels and collaterals.
- LI 4 (Hegu), SP 6 (Sanyinjiao), LIV 3 (Taichong), GB 34 (Yanglingquan), UB 17 (Geshu), UB 18 (Ganshu), SI 11 (Tianzong) - promote Qi circulation, eliminate Blood stasis, and remove channel obstructions.
- ST 36 (Zusanli), UB 17 (Geshu), UB 20 (Pishu), SP 6 (Sanyinjiao), LIV 8 (Ququan), REN 6 (Qihai), REN 4 (Guanyuan) - tonify Qi and Blood, nourish muscles and tendons.
- K 3 (Taixi), K 6 (Zhaohai), GB 39 (Xuanzhong), SP 6 (Sanyinjiao), DU 4 (Mingmen), SJ 4 (Yangchi), LIV 8 (Ququan), UB 23 (Shenshu) - nourish Liver and Kidney Yin.
- For radiculopathic symptoms, needle the huatuojiaji points of the affected spinal segment, in addition to the shoulder, elbow and wrist acupuncture points of the affected meridian. For example:
 - LI 15 (Jianyu), LI 11 (Quchi), LI 5 (Yangxi) for C6 dermatome and large intestine meridian pathology.
 - SJ 14 (Jianliao), SJ 10 (Tianjing) and SJ 4 (Yangchi) for C7 dermatome and san jiao meridian pathology
 - SI 10 (Naoshu), SI 8 (Xiaohai), SI 5 (Yanggu) for C8 dermatome and small intestine meridian pathology.
- SJ 5 (Neiguan), GB 39 (Xuanzhong), GB 34 (Yanglingquan) - relaxes the sinews and ligaments, clears the vessels and relaxes the neck.
- UB 10 (Tianzhu), GB 20 (Fengchi), GB 21 (Jianjing) - disperses stagnation and alleviates pain.
- SI 6 (Yanglao) or SI 3 (Houxi), SI 11 (Tianzong), UB 60 (Kunlun), UB 62 (Shenmai) - removes obstructions in the tai yang channel to relax neck spasms.

Motor points:

- To affected musculature according to the limited range of motion.
- Needle tender myotomal motor points. Spondylosis will make myotomal motor points on one side of the upper extremity more tender than the other side regardless if radiculopathic pain is present or not.

Moxibustion

- Pole moxa over Du 14 (Dazhui), GB 20 (Fengchi), UB 12 (Fengmen), UB 13 (Feishu) to disperse Wind-Cold-Damp from the channels and collaterals.
- Pole or direct moxa on ST 36 (Zusanli), UB 17 (Geshu), UB 20 (Pishu), SP 6 (Sanyinjiao), LIV 8 (Ququan), REN 6 (Qihai), REN 4 (Guanyuan) to tonify Qi and Blood, nourish muscles and tendons.
- Pole or direct moxa on K 3 (Taixi), K 6 (Zhaohai), GB 39 (Xuanzhong), SP 6 (Sanyinjiao), DU 4 (Mingmen), SJ 4 (Yangchi), LIV 8 (Ququan), UB 23 (Shenshu) to nourish Liver and Kidney Yin.

THE CERVICAL SPINE

Muscle Tension Headache

Muscle tension headaches usually have a cervicogenic origin and can be reproduced by palpating various structures of the cervical region. This type of headache is commonly caused by pain sensitive structures in the neck such as muscle spasm and facet joint irritation. Activities such as: weightlifting, contact and overhead sports can over develop muscle groups or create muscle imbalance, predisposing the athlete to neck tension or vertebral dysfunction, resulting in headaches. In addition, inactivity, emotional distress and working for prolonged periods at a desk can cause postural tension and muscle tightening that can manifest into headaches. In TCM, muscle tension headaches are influenced by liver and gallbladder pathology. It is often the case to have disharmony within the wood element manifesting in the gallbladder meridian. Long term results can be obtained by addressing this organ dysfunction.

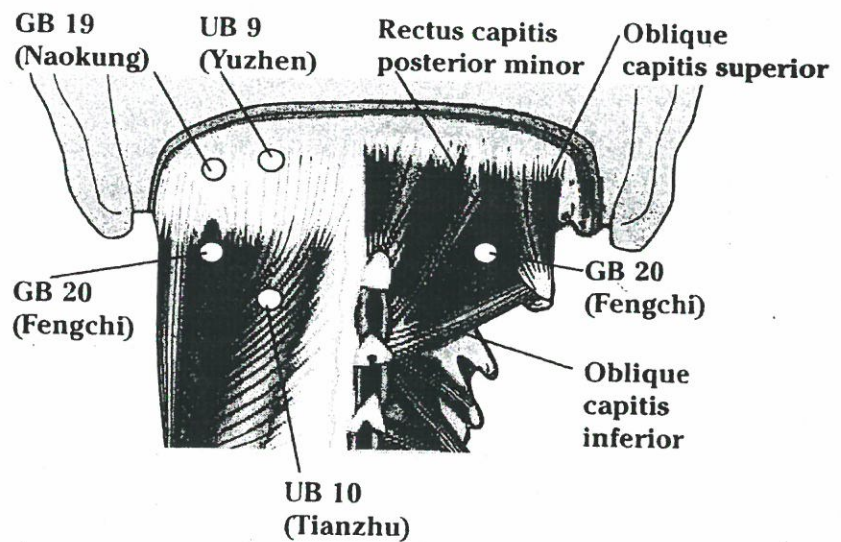
Be aware of other signs and symptoms such as acute onset of a headache with severe pain, headache after a traumatic blow or a headache associated with neck stiffness and fever. These signs and symptoms should be referred out for further investigation of the cause.

Assessment -

- Range of Motion testing: The patient will often have mild cervical limited range of motion in one direction. Certain movements may bring on the headache.
- Pain is usually diffuse, bilateral, and often described as tight or pressing.
- Neck movement often alters the headache.
- Palpation to various points will commonly reproduce the headache.

Areas to palpate are:

- UB 9 (Yuzhen) and GB 19 (Naokung) or juxtapositional ah-shi areas: attachments for the neck extensors at the nuchal ridge.
- GB 20 (Fengchi) in four directions to affect the suboccipital triangle.
1) palpate deeply toward the ipsilateral GB 1 (Tongziliao); this affects the oblique capitis superior muscle.



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- 2) palpate deeply toward the contralateral GB 1 (Tongziliao); this affects the rectus capitis posterior major muscle.
 - 3) palpate deeply toward Ren 24 (Chengjiang); this affects the oblique capitis inferior muscle.
 - 4) palpate deeply toward the tip of the nose DU 25 (Suliao); this affects the acupuncture point GB 20 where a traveling Qi sensation can be obtained.
- UB 10 (Tianzhu): motor point of the semispinalis capitis.
 - Slightly inferior and lateral to GB 20 (Fengchi): Motor point of the splenius capitis.
 - GB 21 (Jianjing): Motor point of the upper trapezius.

TCM Pattern

- Wind-Cold-Damp Obstruction (Feng Hang Shi Bi): external Wind-Cold-Damp enters local channels and collaterals causing dull, aching, sharp or fixed pain that is worse with cold or exposure to damp weather. There may be heaviness in the head. Pain is better with warmth.
- Liver and Gallbladder Qi Stagnation (Gan Dan Qi Zhi): stagnation of Qi in the Liver or Gallbladder channels causes headaches that are worse with stress or emotional upset. Pain can be distending, one-sided, radiating to the temple or vertex, and worse with heat or pressure.
- Qi and Blood Deficiency (Qi Xue Bu Zu): insufficiency of Qi and Blood results in lack of nourishment to the muscles and tendons leading to dull, aching, hollow pain. There may be muscle spasms, weakness, dizziness or vertigo. Pain is worse with exertion and better with rest or light massage.
- Blood Stasis (Xue Yu): local Blood stagnation in the muscles or tendons, which may be caused by either trauma or deficiency, leads to sharp pain in a fixed location that is worse with movement or pressure.

Acupuncture:

Effective target tissue needling to choose from:

- Needle the points that reproduced the muscle tension headache from palpation.
- UB 9 (Yuzhen) and GB 19 (Naokung) or juxtapositional ah-shi areas: needle from superior to inferior down through the tender palpable tissue.
- GB 20 (Fengchi) in four directions to affect the suboccipital triangle.
 - 1) if reactive tenderness with palpation toward the ipsilateral GB 1 (Tongziliao), then needle in this direction up to 1 inch; this affects the oblique capitis superior muscle.
 - 2) if reactive tenderness with palpation toward the contralateral GB 1 (Tongziliao), then needle in this direction up to 1 inch; this affects the rectus capitis posterior major muscle.
 - 3) if reactive tenderness with palpation toward Ren 24 (Chengjiang), then needle in this direction up to 1 inch; this affects the oblique capitis inferior muscle.
 - 4) if reactive tenderness with palpation toward the tip of the nose DU 25 (Suliao), then needle in this direction up to 1 inch.

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Effective acupuncture points and combinations to choose from:

- SI 3 (Houxi), GB 21 (Jianjing), GB 20 (Fengchi), DU 14 (Dazhui), LU 7 (Lieque), UB 12 (Fengmen), UB 13 (Feishu), SJ 5 (Waiguan) - expel Wind-Cold-Damp from the channels and collaterals, disperse stagnation, and alleviate pain.
- UB 60 (Kunlun), UB 62 (Shenmai), UB 18 (Ganshu), UB 19 (Danshu), GB 12 (Wangu), GB 21 (Jianjing), GB 20 (Fengchi), UB 10 (Tianzhu), Huatuojiayi points of T9 and T10 - removes obstructions in the Tai Yang channels to relax neck spasms, reduces fire of the liver and gall bladder.
- GB 21 (Jianjing), GB 20 (Fengchi), UB 10 (Tianzhu), DU 20 (Baihui), GB 41 (Zulinqi), GB 14 (Yangbai), GB 34 (Yanglingquan), LIV 3 (Taichong), LIV 1 (Dadun), SP 6 (Sanyinjiao) - relaxes the sinews, calms and lowers liver Qi
- ST 36 (Zusanli), SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), REN 6 (Qihai), REN 4 (Guanyuan), LIV 8 (Ququan) - tonify Qi and Blood, nourish muscles and tendons.
- LI 4 (Hegu), GB 20 (Fengchi), UB 10 (Tianzhu), UB 17 (Geshu), SI 11 (Tianzong) - eliminate Blood stasis in the channels.
- UB 60 (Kunlun), UB 62 (Shenmai), UB 18 (Ganshu), UB 19 (Danshu), GB 12 (Wangu), GB 21 (Jianjing), GB 20 (Fengchi), UB 10 (Tianzhu), huatuojiayi of T9, T10- removes obstructions in the tai yang channel to relax neck spasms, reduces fire of liver and gall bladder.
- GB 21 (Jianjing), GB 20 (Fengchi), UB 10 (Tianzhu), DU 20 (Baihui), GB 41 (Zulinqi), GB 14 (Yangbai), GB 34 (Yanglingquan), LIV 3 (Taichong), LIV 1 (Dadun), SP 6 (Sanyinjiao)- relaxes the sinews, calms and lowers liver qi.

Motor points:

In addition to the aforementioned motor points that may reproduce the headache, needle: rhomboid major and minor, middle and lower trapezius.

Moxibustion

- Pole moxa over GB 20 (Fengchi), DU 14 (Dazhui), UB 12 (Fengmen), UB 13 (Feishu) to expel Wind-Cold-Damp from the channels and collaterals.
- Pole or direct moxa on ST 36 (Zusanli), SP 6 (Sanyinjiao), UB 20 (Pishu), UB 17 (Geshu), SP 4 (Gongsun), REN 6 (Qihai), REN 4 (Guanyuan) to tonify Qi and Blood.

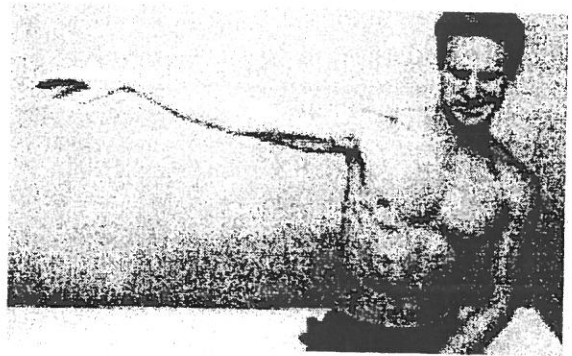
THE SHOULDER

Orthopedic Evaluations

- Painful Arc Test
- Supraspinatus Test or Empty Can Test
- Hawkins-Kennedy
- Neers Test
- Codman Test
- Dawburn's Sign
- Speed's Test
- Alternate Bicipital Long Head Test
- Lift-off Sign

Painful Arc Test

The patient abducts the upper extremity. A painful arc may be present between 60-120° of abduction, as the inflamed structures, the subacromial bursa and/or supraspinatus tendon are pinched under the acromion process and coracoacromial ligament. Be aware if pain is present during the last 10-20° of abduction indicating a possible acromioclavicular joint lesion.

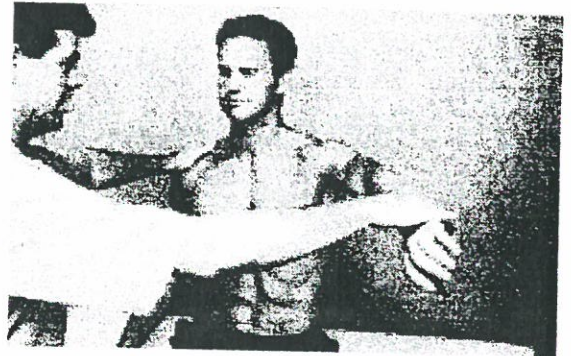


Note: A "muscle assistance" test may be performed during the painful arc test to determine if the lower trapezius and serratus anterior are dysfunctional in elevating the acromion during raising of the arm. The practitioner pushes the lower medial border of the scapula laterally and upward (to simulate the action of these muscles) as the patient elevates the arm. If impingement symptoms have lessened, then these muscles need to be included in the treatment protocol.

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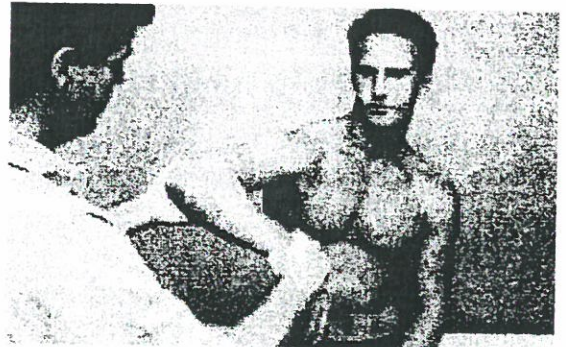
Supraspinatus Test or Empty Can Test

The patient's arm is abducted to 90° with the palm facing anteriorly; force is applied downward into adduction from the practitioner while the patient attempts to maintain the position. The patient then internally rotates the shoulder as if emptying a can; resistance is then applied by the practitioner. A positive test is if the patient's active movements or resisted movements elicit pain; usually in the area of the tendinous insertion located between LI 15 (Jianyu) and SJ 14 (Jianliao).



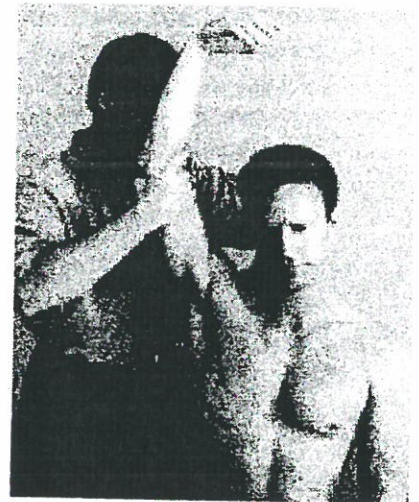
Hawkins-Kennedy Test

The patient may either be sitting or standing. The humerus is placed in 90° of flexion and then internally rotated. This maneuver is accomplished by exerting force through the forearm to bring the glenohumeral joint into internal rotation. Pain generally indicates an inflamed supraspinatus tendon as the greater tubercle of the humerus impinges the tendon against the acromion.

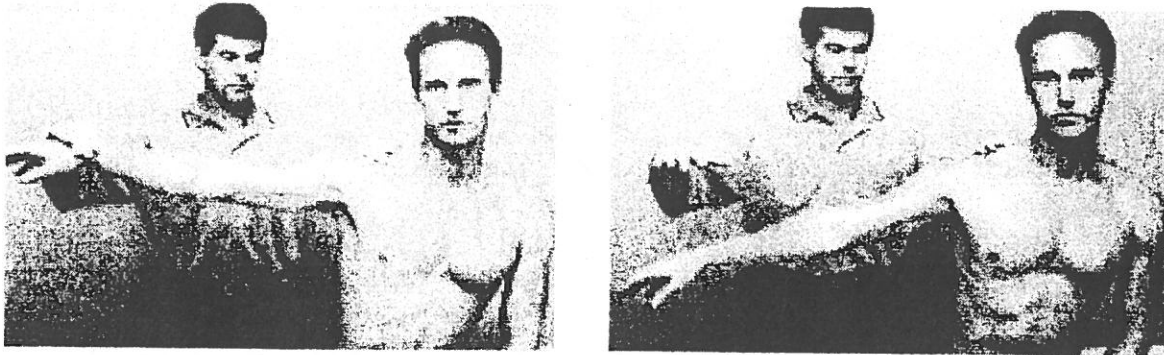


Neers Test

With the patient sitting, the practitioner stands behind the patient and applies a downward pressure on the scapula with one hand. The patient raises the affected arm into maximum flexion and internal rotation as the practitioner helps to guide the arm with their other hand. The practitioner may use more force into flexion and internal rotation. This test forces the greater tuberosity against the acromion and coracoacromial arch, aggravating an inflamed subacromial bursa and/or supraspinatus tendon. A positive test is if the pain is within the last 10 to 15° of forward flexion.

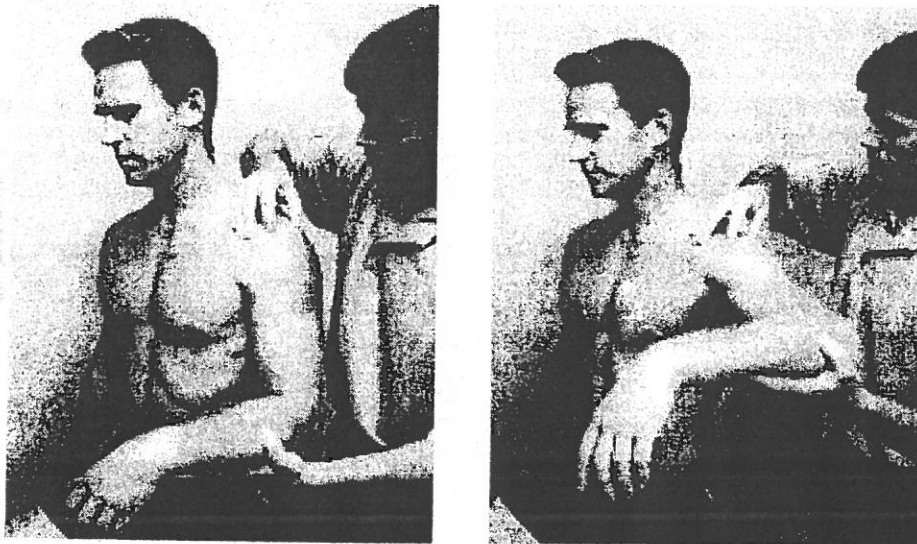


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Codman Test

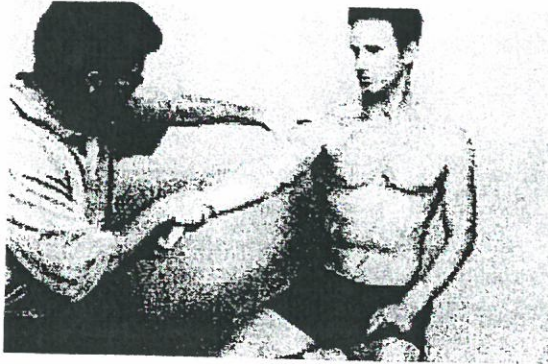
The practitioner places the patient's arm into 90° of abduction. The patient is asked to slowly lower the arm to the side. A positive test is if the patient is unable to lower the arm smoothly or with severe pain, indicating a tear of the rotator cuff tendon.



Dawburn's Sign

With the patient's arm relaxed and adducted to the side, the practitioner palpates deeply over the subacromial bursa located over SJ 14 (Jianliao) and LI 15 (Jianyu), looking for the most tender region. The practitioner then passively abducts the patients arm, maintaining pressure on the tender area. Relief in pain is a positive test. This is due to a pressure release on the bursa as the humeral head abducts away from the acromion.

THE SHOULDER



Speed's Test

The patient flexes the shoulder forward to 90° and extends the elbow. The practitioner places the fingers of one hand over the bicipital groove to apply moderate pressure to the tendon, then provides resistance into shoulder extension. This test is accentuated if the practitioner resists the patient's attempt to supinate the forearm, in addition to forward flexion of the shoulder.

Alternate Bicipital Long Head Test

Have the patient flex the elbow to 90° with 60° of shoulder forward flexion. The patient allows a controlled eccentric contraction as the practitioner moves the humerus into extension. A positive test is pain over the bicipital groove.



Starting position



Patient allows movement with resistance



Lift-off Sign

The patient stands and puts the back of the hand over the low back. The patient then lifts the hand away from the back posteriorly. Difficulty in accomplishing this motion indicates a lesion in the subscapularis muscle.

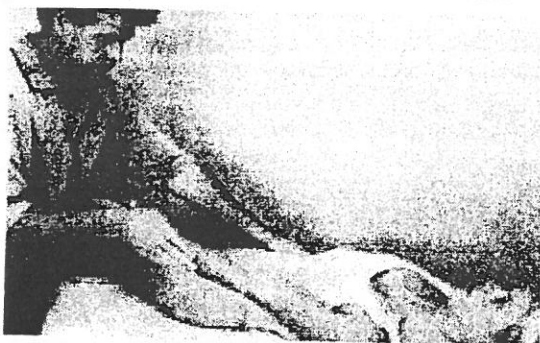
THE SHOULDER

Manual Muscle Testing: Rotator Cuff

- Teres Minor
- Supraspinatus
- Infraspinatus
- Subscapularis

Teres minor - Shoulder external rotation

With the patient in a supine position, place the elbow into 90° of flexion with the shoulder adducted and externally rotated. Place the stabilizing hand against the elbow to prevent shoulder abduction; the driving hand is over the distal forearm near SJ 5 (Weiguan) with the line of drive into internal rotation, P 6 (Neiguan) toward the abdomen.



Supraspinatus - Shoulder abduction

Place the arm into 25°-30° of abduction with slight flexion and the elbow extended. The palm of the hand, P 8 (Laogong) and medial transverse crease HT 3 (Shaohai) needs to be facing the lateral aspect of the body. The driving hand is placed over the distal forearm covering SJ 5 (Weiguan) with the line of drive into adduction into the direction of the thigh, approximately half-way between the stomach and gall bladder meridians.



Infraspinatus - Shoulder external rotation

Place the patient in a supine position with the shoulder abducted to 110°-120°, externally rotated and the elbow flexed to 90°. Stabilize the elbow to prevent any excess rotation of the shoulder. The driving hand is under the distal forearm covering SJ5 (Weiguan) with the line of drive going into shoulder internal rotation.

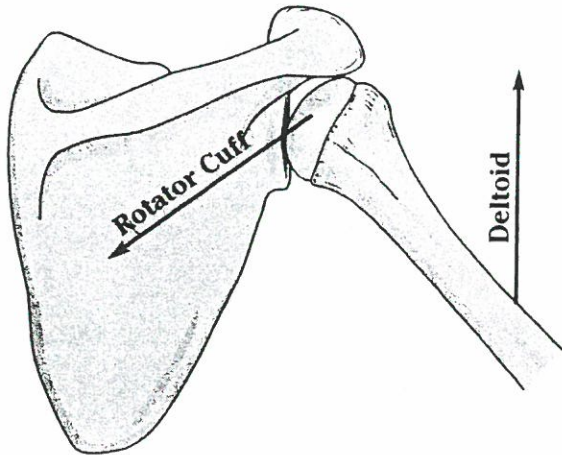


Subscapularis - Shoulder internal rotation

With the patient supine, abduct the arm between 80° and 110°, flex the elbow to 90°. The stabilizing hand is under the posterior elbow near SJ 10 (Tianjing) with the driving hand on the distal forearm covering P 7 (Daling). The line of drive is into external rotation, this will move SJ 5 (Weiguan) superiorly.

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Rotator Cuff Muscles



Supraspinatus

The supraspinatus assists the deltoid in abducting the arm, with its greatest effort being at the beginning stages of abduction, as it pulls the head of the humerus into the glenohumeral joint. Its position on the scapula allows it to have a very strong pull on the humerus and also assists in preventing the downward dislocation of the humeral head. Studies have shown that there is a deficient blood supply zone located at the supraspinatus tendon just proximal to its insertion onto the humerus near LI 15 (Jianyu). In addition, there is a significant decrease of the blood supply

with aging. Since most degenerative tears occur in this hypovascular region of the supraspinatus, it is assumed that this localized and relative ischemia, combined with aging, plays a role in predisposing this rotator cuff tendon to injury.

Infraspinatus and Teres Minor

These two muscles parallel each other anatomically and work together to externally rotate the humerus. They are responsible for depressing the head of the humerus into the glenohumeral joint during all shoulder movements and for providing stability to the shoulder. Force-to-force, the external rotators are much weaker than the internal rotators (pectorals, latissimus dorsi and the subscapularis), and an imbalance of these two groups often leads to shoulder dysfunction.

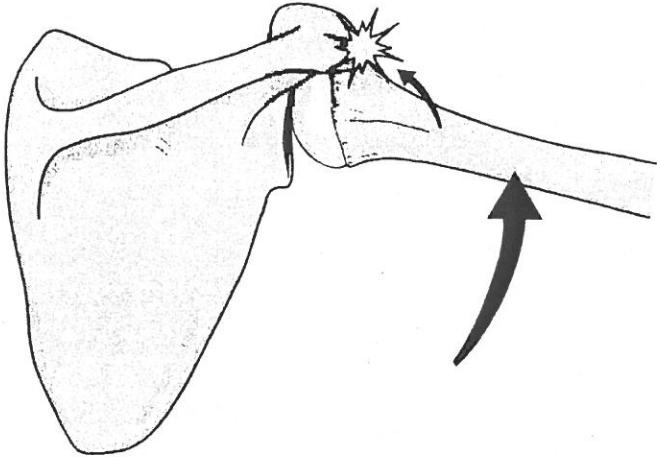
Subscapularis

The subscapularis is the only internal rotator of the four cuff muscles. It stabilizes the shoulder by pulling the humeral head down into the joint during abduction.

THE SHOULDER

Rotator Cuff Biomechanics

The basic function of the rotator cuff muscles are to stabilize the shoulder joint, counterbalance the upward pull of the deltoid and provide a stable base from which the shoulder muscles can act. As the arm is lifted, the deltoid contracts in order to provide abduction, thus pulling the head of the humerus superiorly.



The humeral head would continue to pull up and abut the roof of the shoulder (the acromion and coracoacromial ligament known as the coracoacromial arch) if not for the action of the rotator cuff muscles performing one of their major functions, which is to depress and stabilize the humeral head into the glenohumeral joint. Three of the four rotator cuff muscles, the teres minor, subscapularis and

infraspinatus counterbalance the upward pull of the deltoids, thus preventing the head of the humerus from striking the roof, by pulling the humerus just enough to prevent the collision and allow the humeral head to move freely.

During essentially all major upper body motions, the four rotator muscles act together as stabilizers for the humerus to be guided into the glenohumeral joint. The supraspinatus pulls the humeral head into the glenoid fossa superiorly, the infraspinatus pulls it in from the posterior, the teres minor pulls it in from the posterior and inferior, while the subscapularis pulls it in from the anterior and inferior. This stabilizing effect that these muscles provide allows other muscles that act on the shoulder to perform effectively. If the rotator cuff is compromised, through weakness or injury, the larger muscles cannot effectively act on the joint and will create further imbalance and injury. Repetitive impingement creates a thinning of the supraspinatus tendon that results in a degenerative tear or rupture.

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Common Injuries to the Shoulder: Assessment and Treatment

The cervical spine and shoulder have a direct relationship through muscle, tendon and fascial attachments, in addition to the muscles of the rotator cuff and shoulder girdle which are all innervated from the cervical spine. Every patient with a history of shoulder pain, of gradual onset, even occupational repetitive injuries, should always have the cervical and thoracic spine evaluated in order to rule out referred symptoms and/or tender myotomal motor points stemming from cervical spondylosis.

Supraspinatus Tendinitis

Inflammation of the supraspinatus tendon is one of the most frequent causes of shoulder pain. Individuals who have shoulder instability as a result of repetitive microtrauma, place increased demands on the rotator cuff muscles as they attempt to keep the humeral head centered into the glenohumeral joint. Muscle imbalance leads to fatigue; fatigue leads to tendinitis and if allowed to continue, the rotator cuff muscles may no longer center the humeral head into the shoulder joint. Dysfunction of the rotator cuff muscles allows the humeral head to migrate superiorly during abduction predisposing the shoulder to supraspinatus tendinitis and eventually impingement syndrome.

The patient will usually have a precipitating factor of overuse of the shoulder. The pain is described as deep, dull aching at rest and usually sharp with elevation of the arm. The patient will often point to the subacromial area between LI 16 (Jugo), LI 15 (Jianyu) and SJ 14 (Jianliao). Range of motion is usually normal, although there may be a painful arc between 60 and 120°. Note: If symptoms are more severe than described above, refer to Impingement Syndrome.

Assessment -

- Supraspinatus MMT
- Painful Arc Test
- Supraspinatus Test Or Empty Can Test
- Hawkins-Kennedy
- Kibler test

TCM Pattern

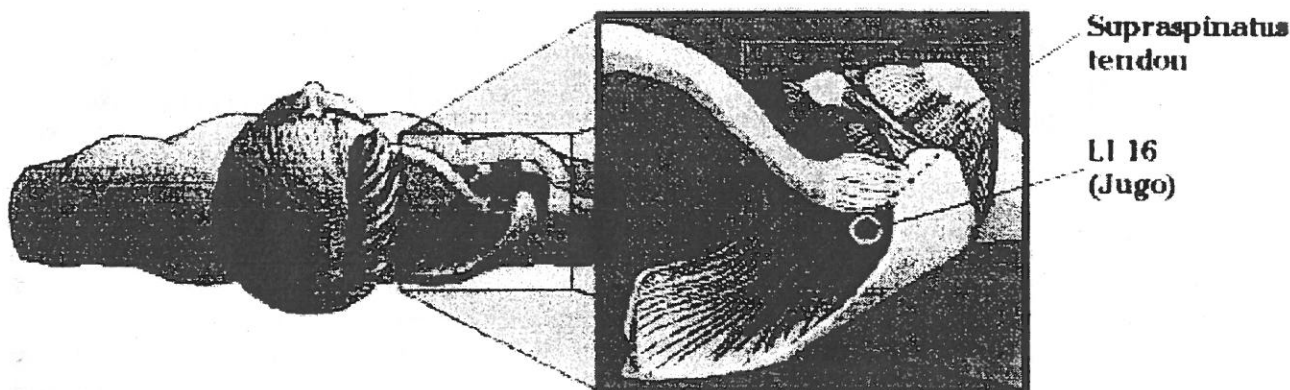
- Qi and Blood Stagnation with underlying Qi and Blood Deficiency (Qi Zhi Xuè Yu, Qi Xue Bu Zu): overuse of the shoulder causes microtearing of the soft tissue resulting in stagnation of Qi and Blood in the channels and collaterals. Pain is sharp, worse with movement, and range of motion is affected. If stagnation is allowed to continue, or if there is an underlying Qi and Blood deficiency, tendons may become insufficiently nourished leading to a chronic injured state where pain becomes constant, dull and aching even at rest.
- Wind-Cold-Damp Obstruction (Feng Han Shi Bi): chronic injury weakens the shoulder joint making it susceptible to pathogenic invasion by Wind-Cold-Damp. Pain is deep, fixed, worse with cold, and better with warmth. There may be heavy sensations or dull, aching pain that is worse with weather changes.

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Acupuncture:

Effective target tissue needling to choose from:

- If the Kibler test is positive, then treat the muscle motor points of the shoulder girdle: trapezius, levator scapulae, rhomboid, pectoralis minor and the serratus anterior.
- Subscapularis needling: have the patient abduct the arm as far as comfortably possible, preferably to a minimum of 90 ° to allow adequate access to the subscapularis. Palpate and needle the subscapularis for tender ah-shi points.



- Supraspinatus needle technique: insert one 2-3 in. needle, starting approximately one cun proximal from LI 16 (Jugo) in the direction of the A-C joint. The needle should pass under the acromion and above the supraspinatus tendon.

Effective acupuncture points and combinations to choose from:

- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), UB 17 (Geshu), UB 18 (Ganshu), UB 20 (Pishu), GB 34 (Yanglingquan), ST 30 (Qichong), ST 36 (Zusanli), REN 6 (Qihai) - tonify Qi and Blood, nourish tendons and muscles.
- DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) - expel external Wind-Cold-Damp from the channels.

Posteriorly:

- Huatuojiayi points of C5,C6
- SI 3 (Houxi), SI 10 (Naoshu), SI 11 (Tianzhong), SI 12 (Bingfeng), GB 21 (Jianjing), SJ 14 (Jianliao) - relaxes the tendons, soothes the joint, clears the channels and stops pain.

Anteriorly:

- ST 14 (Kufang), ST 15 (Wuyi), LI 16 (Jugo), Jianneiling, Dai Jian Zhen, LI 11 (Quchi), LI 4 (Hegu) or SJ 10 (Tianjing), SJ 4 (Yangqi) - relaxes the sinews and clears the channels.

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Motor Points:

Check for tenderness and needle:

Infraspinatus, teres minor, supraspinatus, trapezius (all fibers), teres major, deltoid (all fibers), pectorals (clavicular and sternal).

Moxibustion

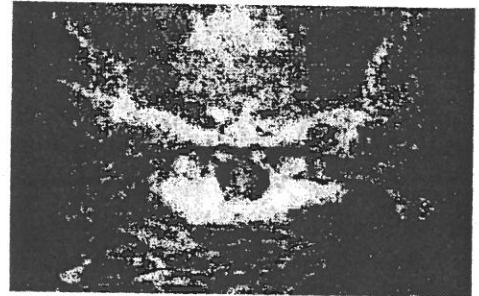
- Pole or direct moxa over local area to move Qi and Blood, and promote healing. Contraindicated if heat signs are present.
- Pole or direct moxa on SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) to tonify Qi and Blood.
- Pole or direct moxa on DU 14 (Dazhui), ST 36 (Zusanli), SP 9 (Yinlingquan), ST 40 (Fenglong) to eliminate Wind-Cold-Damp.

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Impingement Syndrome

Impingement syndrome primarily involves the head of the humerus abutting the acromion and coracoacromial ligament during repetitive overhead activities pinching the subacromial bursa, the supraspinatus tendon and/or bicipital long head tendon. Inflammation and swelling of the supraspinatus tendon, the bicipital long head tendon or the subacromial bursa are often the main structures involved in the actual impingement

The combined inferior and medial pull from the rotator cuff muscles maintains the humeral head within the shallow glenoid, thereby resisting the upward force created by the deltoid during abduction of the arm. In effect, the humeral head is steered into the joint as the humerus moves into its large range of motion. An imbalance in the rotator cuff muscles offsets how the humeral head is steered into the glenoid, resulting in laxity and possible impingement. An even pull from the rotator muscles keep the humeral head centered with a small arc of movement of approximately 3 mm. When imbalanced, it has been shown that the center of rotation of the humeral head migrates superiorly 6 mm. when the arm is elevated.



Repetitive overhead movements involving internal rotation predisposes the shoulder toward impingement

Muscle imbalance is usually found between the internal and external rotators of the shoulder joint accompanied with muscle shortening and weakness within the shoulder girdle muscles. Many times, external rotator weakness is caused by a repetitive exercise or job-related movement that requires predominate shoulder internal rotation. There are not many activities that require external rotation as a primary movement. The most significant activity that causes damage is raising the arm to the side and above with the arm internally rotated. Between 60 to 120° of shoulder abduction or flexion brings the tendons located on the greater tubercle very close to the acromion. If those tendons and/or shoulder bursa are at all inflamed, they take up more space than is available, which results in impingement syndrome.

The amount of damage is usually related to the chronicity of the problem. Acute impingement may be from a microtearing of the supraspinatus tendon leading to swelling and edema. With repetitive impingement from overhead activities, the subacromial bursa becomes fibrotic and thickened, and the supraspinatus tendon becomes further inflamed. Chronic degenerative changes may involve a partial or complete tear of the tendon and possible subacromial bone spurs. If left untreated, impingement syndrome can progress from simple and reversible inflammation to irreversible rotator cuff tendinitis and tearing.

Rupture of the Supraspinatus Tendon: Rupture of the supraspinatus tendon can be a partial or total rupture that occurs mostly in older (usually over the age of 40) athletes who after a long period of inactivity, have resumed training and competition in a sporting activity. If the rotator cuff is compromised through weakness or injury, the larger

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muscles cannot effectively act on the joint and will create further imbalance and injury. A single traumatic event or repetitive impingement creates a thinning of the supraspinatus tendon that results in a degenerative tear or rupture.

Non-surgical vs. Surgical: Smaller, partial-thickness tears in lower-activity patients place less demand on the myotendonious unit and may do well with non-surgical management. Treatment consists of flexibility and strengthening of the glenohumeral and scapulothoracic regions as suggested in this text. Tears of any size in patients with an active lifestyle may lead to chronic pain and weakness if left untreated; in these cases, surgery may be needed to enhance the quality of life.

Assessment-

- The patient may complain about painful forward elevation of the arm above the shoulder level with difficulty sleeping on the affected side. The pain is usually anterior or lateral over the deltoid and may be associated with weakness and motion loss.
- Painful Arc Test
- Hawkins-Kennedy Test
- Neers Test
- Codman Test
- Kibler Test
- X Rays may show bone spur formation of the acromion or distal clavicle.
- MRI: is useful after conservative methods have not improved the signs and symptoms. An arthrographic dye is injected into the glenohumeral joint that may show evidence of a partial-thickness tear. It is helpful to determine extent and chronicity, but not always required for confirmation.

TCM Pattern

- Liver or Kidney Painful Obstruction Syndrome (Gan Bi and Shen Bi): long term obstruction, or poor nourishment of Qi and Blood, causes painful obstruction at a deep organ level. Obstruction may be the result of Qi and Blood stagnation, Wind-Cold-Damp obstruction, or both. Swelling, edema, fibrotic changes to the bursa or tendons, bone spurs, and severe, chronic pain are evidence that the Zang organ systems have become affected.

Acupuncture:

Effective target tissue needling to choose from:

- If the Kibler test was positive, treat the muscle motor points of the shoulder girdle: trapezius, levator scapulae, rhomboid, pectoralis minor and the serratus anterior.

Subscapularis needling: have the patient abduct the arm as far as comfortably possible, preferably to a minimum of 90° to allow adequate access to the subscapularis. Palpate and needle the subscapularis for tender ah-shi points.

Supraspinatus needle technique: insert one 2-3 in. needle, starting approximately

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one cun proximal from LI 16 (Jуго) in the direction of the A-C joint. The needle should pass under the acromion and above the supraspinatus tendon.

Effective acupuncture points and combinations to choose from:

- UB 18 (Ganshu), UB 23 (Shenshu), K 3 (Taixi), REN 4 (Guanyuan), REN 6 (Qihai), DU 4 (Mingmen), SJ 4 (Yangchi), SP 6 (Sanyinjiao) - strengthen Liver, Kidneys, Qi, Blood and Essence.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis.
- DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) - expel Wind-Cold-Damp from the channels and collaterals.
- GB 34 (Yanglingquan), SJ 4 (Yangchi), SI 3 (Houxi) - relax and nourish tendons.

Posteriorly:

- Huatuojiayi points of C5, C6
- SI 3 (Houxi), SI 10 (Naoshu), SI 11 (Tianzhong), SI 12 (Bingfeng), GB 21 (Jianjing), SJ 14 (Jianliao): relaxes the tendons, soothes the joint, clears the channels and stops pain.

Anteriorly:

- ST 14 (Kufang), ST 15 (Wuyi), LI 16 (Jуго), Jianneiling, Dai Jian Zhen, LI 11 (Quchi),
- LI 4 (Hegu) or SJ 10 (Tianjing), SJ 4 (Yangqi): relaxes the sinews and clears the channels.

Motor Points:

Check for tenderness and needle the infraspinatus, teres minor, supraspinatus, trapezius (all fibers), teres major, deltoid (all fibers), pectorals (clavicular and sternal).

Moxibustion

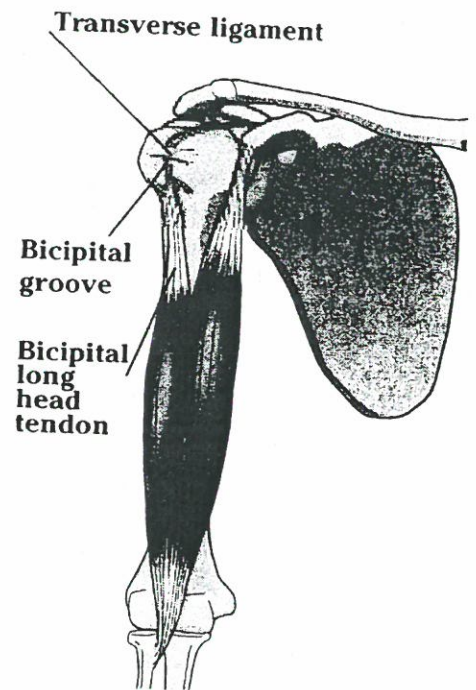
- Pole moxa locally over shoulder to warm the channels and collaterals, nourish tendons, and promote Qi and Blood circulation.
- Pole or direct moxa on UB 18 (Ganshu), UB 23 (Shenshu), REN 4 (Guanyuan), REN 6 (Qihai), DU 4 (Mingmen), SJ 4 (Yangchi), SP 6 (Sanyinjiao) to strengthen Liver, Kidneys, Qi, Blood and Essence.
- Pole or direct moxa on DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) to expel Wind-Cold-Damp from the channels and collaterals.

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Bicipital Tendinitis - Tenosynovitis

Inflammation to the tendon of the long head of the biceps is a common occurrence in shoulder pain. It usually occurs from overhead repetitive motions like in racket sports or an occupation such as painting. Bicipital tendinitis is an inflammation of the long head of the biceps where the tendon passes through the bicipital groove and inserts into the shoulder joint. The biceps tendon is fixed in position as the humerus moves on the tendon, creating wear-and-tear on the tendon itself. Improper gliding of the head of the humerus from imbalance between rotator cuff muscles adds stress to the bicipital tendon. Due to its insertion above the head of the humerus, it functions as a strap for anterior stability for the humeral head.

Its anatomical location predisposes the bicipital tendon to the inflammatory and degenerative processes from moderate to severe rotator cuff disease. It is often associated with cuff tendinitis, as it shares and is interwoven with the same synovial lining as with the supraspinatus and subscapularis tendons. Bicipital tenosynovitis involves the inflammation of the synovial sheath that covers the biceps tendon and may be the preliminary tissue affected before the actual tendon. Many times, by treating the rotator cuff and the inflammatory process, the bicipital tendinitis and tenosynovitis is ameliorated.



Assessment-

- Speed's Test
- Alternate Bicipital Long Head Test

TCM Pattern

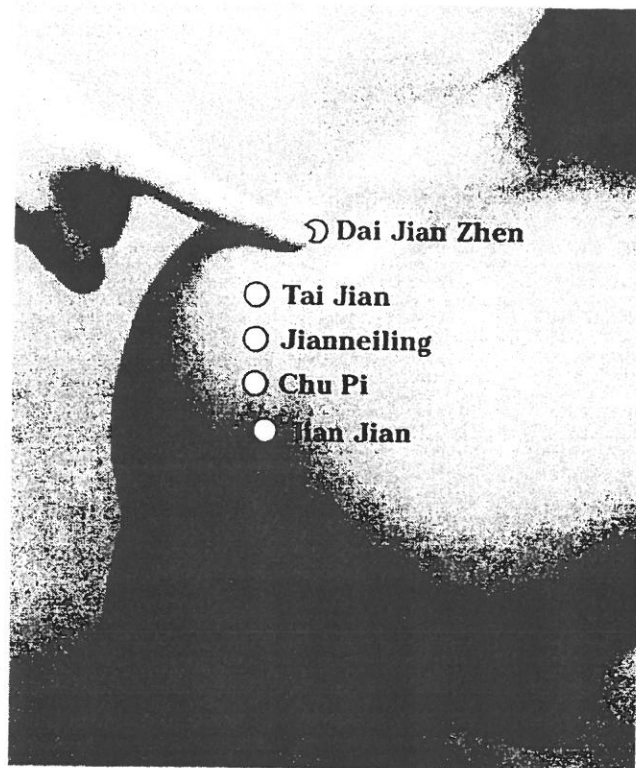
- Qi and Blood Stagnation with underlying Qi and Blood Deficiency (Qi Zhi Xue Yu, Qi Xue Bu Zu): repetitive use or strain on the tendon causes microtearing of the soft tissue resulting in stagnation of Qi and Blood in the channels and collaterals. Pain is sharp, worse with movement, and range of motion is affected. If stagnation is allowed to continue, or if there is an underlying Blood deficiency, tendons may become insufficiently nourished resulting in pain that is dull, aching and chronic.

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Acupuncture:

Effective target tissue needling to choose from:

- Consider shoulder girdle muscle needling; use Kibler test to assess dysfunction.
- Jianneiling: motor point of the anterior deltoid located half way between LI 15 (Jianyu) and the anterior axillary fold. Deeper insertion enters musculotendinous junction of the biceps long head tendon.
- Taijian: 1 cun above Jianneiling enters through the anterior deltoid, medial to the bicipital long head tendon, affecting the subscapularis tendon attachment and anterior capsule.
- Dai Jian Zhen: enters coracoacromial and coracoclavicular ligaments located approximately between LU 2 (Yunmen) and LI 15 (Jianyu).
- Chupi: located 1 cun below Jianneiling perpendicular insertion enters the motor point of the coracobrachialis, lateral insertion stimulates biceps brachii long head tendon.
- Jian Jian: located 1 cun above the anterior axillary fold, enters musculotendinous junction of the pectoralis major. Lateral insertion stimulates biceps brachii long head tendon.



Finger angle indicates needle direction.

Effective acupuncture points and combinations to choose from:

- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis in the channels and collaterals.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), UB 17 (Geshu), UB 18 (Ganshu), UB 20 (Pishu), GB 34 (Yanglingquan), ST 36 (Zusanli), REN 6 (Qihai) - tonify Qi and Blood, nourish tendons and muscles.
- DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) - expel external Wind-Cold-Damp from the channels and collaterals.

Posteriorly:

- Huatuoji points of C5, C6
- SI 3 (Houxi), SI 10 (Naoshu), SI 11 (Tianzhong), SI 12 (Bingfeng), GB 21 (Jianjing), SJ 14 (Jianliao) - relaxes the tendons, soothes the joint, clears the channels and stops pain.

Anteriorly:

- KID 27 (Shufu), ST 14 (Kufang), ST 15 (Wuyi), LI 16 (Jуго), LI 11 (Quchi), LI 4 (Hegu) or SJ 10 (Tianjing), SJ 4 (Yangqi) - relaxes the sinews and clears the channels.

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Motor Points:

Check for tenderness and needle biceps long and shorthead, infraspinatus, teres minor, supraspinatus, trapezius (all fibers), teres major, deltoid (all fibers), pectorals (clavicular and sternal).

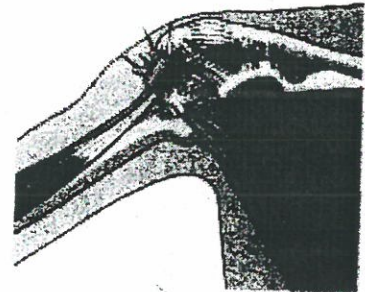
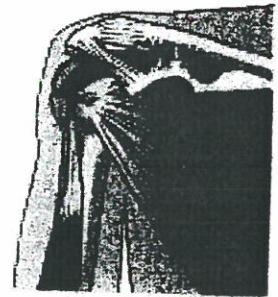
Moxibustion

- Pole or direct moxa over local area to move Qi and Blood, and promote healing. Contraindicated if heat signs are present.
- Pole or direct moxa on SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) to tonify Qi and Blood.
- Pole or direct moxa on DU 14 (Dazhui), ST 36 (Zusanli), SP 9 (Yinlingquan), ST 40 (Fenglong) to eliminate Wind-Cold-Damp.

Subacromial Bursitis

Subacromial bursitis is an inflammation of the bursa that is usually secondary to tendinitis or impingement syndrome. Anatomically, the subacromial bursa is connected superiorly to the coracoacromial ligament and inferiorly to the supraspinatus tendon. Therefore, as with any inflammation within these structures, this bursa is directly affected. Tendinitis usually precedes bursitis in the sequence of pathology, although with chronic repetitive irritation, the patient may present with both. The signs and symptoms for bursitis differ slightly from tendinitis. The objective is to assess if the inflamed bursa needs to be addressed as a primary consideration along with the tendinitis. Treatment is usually the same with some modifications to reduce the swelling of the bursa.

Once the muscle imbalance has been treated and the inflammatory process quelled, the bursa is often no longer irritated from the compressional forces of the humerus abutting the coracoacromial arch.



Assessment-

- Dawburn's Sign
- An inflamed bursa will usually be sore with non-specific MMT and passive stretching, whereas tendinitis is usually sore upon the specific MMT or stretching that challenges the inflamed tendon.
- Palpable swelling or puffiness around LI 15 (Jianyu)

TCM Pattern

- Qi and Blood Stagnation with underlying Qi and Blood Deficiency (Qi Zhi Xue Yu and Qi Xue Bu Zu): overuse of the shoulder causes microtearing and irritation to the soft tissue resulting in stagnation of Qi and Blood in the channels and collaterals. Stagnation in the channels impedes the circulation of fluids causing swelling,

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and prevents nourishment from reaching the bursa and tendons causing local Qi and Blood deficiency with dull, aching pain.

- Wind-Cold-Damp Obstruction (Feng Han Shi Bi): chronic injury weakens the shoulder joint making it susceptible to pathogenic invasion by Wind-Cold-Damp. Pain is deep, fixed, worse with cold, and better with warmth. There may be heavy sensations, swelling, or dull, aching pain that is worse with weather changes.

Since subacromial bursitis is often a secondary condition from a tendinitis or impingement condition, refer to those sections for other treatment considerations. Internal herbal medications and external poultices are very useful and will differ in the treatment protocol.

Acupuncture

- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), UB 17 (Geshu), UB 18 (Ganshu), UB 20 (Pishu), GB 34 (Yanglingquan), ST 36 (Zusanli), REN 6 (Qihai) - tonify Qi and Blood, nourish tendons and muscles.
- DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) - expel external Wind-Cold-Damp from the channels and collaterals.

Moxibustion

- Pole or direct moxa over local area to move Qi and Blood, and promote healing. Contraindicated if heat signs are present.
- Pole or direct moxa on SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) to tonify Qi and Blood.
- Pole or direct moxa on DU 14 (Dazhui), ST 36 (Zusanli), SP 9 (Yinlingquan), ST 40 (Fenglong) to eliminate Wind-Cold-Damp.

Inflammation of the Subscapularis Tendon

The subscapularis muscle is an important internal rotator of the upper arm. It originates on the anterior surface of the scapula and attaches to the anterior aspect of the humerus. Commonly, subscapularis tendinitis is developed from overhead sports that require the arm to be raised outward, horizontally abducted, externally rotated and extended to about 90-120° to the body then "thrown" into flexion and internal rotation of the shoulder joint. This action is common with baseball pitchers, javelin throwers, quarterbacks in football, as well as tennis players during the serve.

Assessment -

- Lift-off Sign
- MMT of the subscapularis may produce pain.

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TCM Pattern

- Qi and Blood Stagnation with underlying Qi and Blood Deficiency (Qi Zhi Xue Yu and Qi Xue Bu Zu): injury, muscle imbalance, or overuse of the shoulder causes stagnation of Qi and Blood in the channels and collaterals resulting in pain that is sharp or dull, and worse with movement. Underlying Qi and Blood deficiency causing tendons and muscles to be insufficiently nourished may cause dull and aching pain.
- Wind-Cold-Damp Obstruction (Feng Han Shi Bi): chronic injury, or Blood deficiency, weakens the shoulder joint making it susceptible to pathogenic invasion by Wind-Cold-Damp. Pain is deep, fixed, worse with cold, and better with warmth. There may be heavy sensations or dull, aching pain that is worse with weather changes.

Acupuncture:

Effective target tissue needling to choose from:

- Subscapularis needling: have the patient abduct the arm as far as comfortably possible, to a minimum of 90 ° to allow adequate access to the subscapularis. Palpate and needle the subscapularis for tender ashi points. A preferred sensation is to radiate down the HT channel; compliment this with HT 3 (Shaohai) and HT 7 (Shenmen).
- Taijian: 1 cun above Jianneiling enters through the anterior deltoid, medial to the bicipital long head affecting the subscapularis tendon attachment and anterior capsule.
- Dai Jian Zhen: enters coracoacromial and coracoclavicular ligaments located approximately between LU 2 (Yunmen) and LI 15 (Jianyu).
- Jianneiling: motor point of the anterior deltoid located half-way between LI 15 (Jianyu) and the anterior axillary fold. Deeper insertion enters the biceps long head tendon.

Effective acupuncture points and combinations to choose from:

- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), UB 17 (Geshu), UB 18 (Ganshu), UB 20 (Pishu), GB 34 (Yanglingquan), ST 36 (Zusanli), REN 6 (Qihai) - tonify Qi and Blood, nourish tendons and muscles.
- DU 14 (Dazhui), ST 36 (Zusanli), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) - expel external Wind-Cold-Damp from the channels and collaterals.

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Posteriorly:

- Huatuoji points of C5,C6
- SI 3 (Houxi), SI 10 (Naoshu), SI 11 (Tianzhong), SI 12 (Bingfeng), GB 21 (Jianjing), SJ 14 (Jianliao) - relaxes the tendons, soothes the joint, clears the channels and stops pain.

Anteriorly:

- KID 27 (Shufu), ST 14 (Kufang), ST 15 (Wuyi), LI 16 (Jugo), LI 11 (Quchi), LI 4 (Hegu) or SJ 10 (Tianjing), SJ 4 (Yangqi) - relaxes the sinews and clears the channels.

Motor Points:

Check for tenderness and needle biceps long and shorthad, coracobrachialis, infraspinatus, teres minor, supraspinatus, trapezius (all fibers), teres major, deltoid (all fibers), pectorals (clavicular and sternal).

Moxibustion

- Pole or direct moxa over local area to move Qi and Blood, and promote healing. Contraindicated if heat signs are present.
- Pole or direct moxa on SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) to tonify Qi and Blood.
- Pole or direct moxa on DU 14 (Dazhui), ST 36 (Zusanli), SP 9 (Yinlingquan), ST 40 (Fenglong) to eliminate Wind-Cold-Damp.

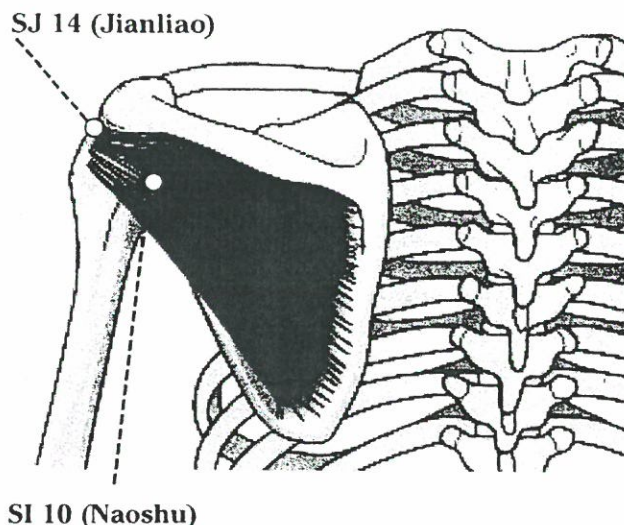
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Infraspinatus Myotendinous Strain

The patient may feel pain at the insertion of the infraspinatus located just below SJ 14 (Jianliao) and deep to SI 10 (Naoshu). A dull aching sensation may be felt within the muscle belly itself, although with activities involving forced external rotation or stretching of the infraspinatus, a sharp stabbing pain will often be felt on or near the tendinous attachment.

Assessment -

- Pain upon palpation on or near the infraspinatus tendinous attachment.
- Pain with MMT of the infraspinatus.
- For chronic strains, check for rounded shoulders from pectoralis minor tightness.



TCM Pattern

- Qi and Blood Stagnation with underlying Qi and Blood Deficiency (Qi Zhi Xue Yu and Qi Xue Bu Zu): injury, muscle imbalance, or overuse of the shoulder causes stagnation of Qi and Blood in the channels resulting in pain that is sharp or dull, and worse with movement. Underlying Qi and Blood deficiency causing tendons and muscles to be insufficiently nourished may cause dull and aching pain.
- Wind-Cold-Damp Obstruction (Feng Han Shi Bi): chronic injury, or Blood deficiency, weakens the shoulder joint making it susceptible to pathogenic invasion by Wind-Cold-Damp. Pain is deep, fixed, worse with cold, and better with warmth. There may be heavy sensations or dull, aching pain that is worse with weather changes.

Acupuncture:

Effective acupuncture points and combinations to choose from:

- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), UB 17 (Geshu), UB 18 (Ganshu), UB 20 (Pishu), GB 34 (Yanglingquan), ST 36 (Zusanli), REN 6 (Qihai) - tonify Qi and Blood, nourish tendons and muscles.
- DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong), ST 36 (Zusanli) - expel external Wind-Cold-Damp from the channels.
- Huatuojiayi points of C5, C6
- SI 3 (Houxi), SI 10 (Naoshu), SI 11 (Tianzhong), SI 12 (Bingfeng), GB 21 (Jianjing), SJ 14 (Jianliao) - relaxes the tendons, soothes the joint, clears the channels and stops pain.

THE SHOULDER

Motor Points:

Infraspinatus, supraspinatus, rhomboids, trapezius (all fibers), anterior deltoid, teres minor and the pectoralis minor.

Moxibustion

- Pole or direct moxa over local area to move Qi and Blood, and promote healing. Contraindicated if heat signs are present.
- Pole or direct moxa on SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) to tonify Qi and Blood.
- Pole or direct moxa on DU 14 (Dazhui), ST 36 (Zusanli), SP 9 (Yinlingquan), ST 40 (Fenglong) to eliminate Wind-Cold-Damp.

Subscapular Pain

Subscapular pain starts at the medial border of the scapula and travels under the scapula laterally. It is a common pain among office workers or athletes involved in overhead activities. Forward rounded shoulders are commonly seen, as this puts strain on the scapula stabilizer muscles. Primarily, the patient will feel the pain in the UB 41 (Geguan) and UB 42 (Hunmen) area that radiates under the scapula. They may report that the pain is difficult to get to as they search for devices that will massage the medial scapular area, frustrated with temporary relief or an inability to get under the scapular region.

Assessment -

- Pain upon palpation to the UB 41 (Geguan) and UB 42 (Hunmen) area. Usually indicates rhomboid, serratus posterior superior, middle and lower trapezius myospasm.
- Pectoralis Minor Shortness Test: shortening of the pectoralis minor adds tension to the antagonist scapular stabilizers.
- Kibler Test

TCM Pattern

- Qi and Blood Stagnation with underlying Qi and Blood Deficiency (Qi Zhi Xue Yu, Qi Xue Bu Zu): injury, muscle imbalance, or overuse of the shoulder causes stagnation of Qi and Blood in the channels and collaterals resulting in pain that is sharp or dull, and worse with movement. Underlying Qi and Blood deficiency causing tendons and muscles to be insufficiently nourished may cause dull and aching pain.
- Wind-Cold-Damp Obstruction (Feng Hang Shi Bi): chronic injury, or Blood deficiency, weakens the shoulder joint making it susceptible to pathogenic invasion by Wind-Cold-Damp. Pain is deep, fixed, worse with cold, and better with warmth. There may be heavy sensations or dull, aching pain that is worse with weather changes.

THE SHOULDER

- Liver Qi Stagnation (Gan Qi Yu Zhi): recurrent or chronic pain in the scapular region may be indicative of patients with Liver Qi Stagnation who try to master everything in their lives, and have difficulty letting go of control or ego.

Acupuncture:

Effective target tissue needling:

- Needle under the scapula with 2-4 needles starting approximately .5-1 cun lateral from the medial border of the scapula. Palpate depth of posterior rib cage to assess angle of needle. Needle oblique 1.5 inches.

Effective acupuncture points and combinations to choose from:

- SP 6 (Sanyinjiao), SP 10 (Xuehai), LIV 3 (Taichong), LI 4 (Hegu), SI 3 (Houxi), SJ 4 (Yangchi) - promote Qi circulation and eliminate Blood stasis.
- SP 6 (Sanyinjiao), SP 10 (Xuehai), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) - tonify Qi and Blood, nourish tendons and muscles.
- DU 14 (Dazhui), SI 3 (Houxi), SJ 4 (Yangchi), SJ 5 (Waiguan), SP 9 (Yinlingquan), ST 40 (Fenglong) - expel external Wind-Cold-Damp from the channels and collaterals.
- LIV 14 (Qimen), LIV 3 (Taichong), LI 4 (Hegu), UB 18 (Ganshu), UB 47 (Hunmen), GB 34 (Yanglingquan) - smooth Liver Qi, eliminate stagnation.
- Huatuojiayi points of C5-T3 : often sore with this pathology due to vertebral misalignment.
- SI 3 (Houxi), SI 10 (Naoshu), SI 11 (Tianzhong), SI 12 (Bingfeng), GB 21 (Jianjing): relaxes the tendons, soothes the joint, clears the channels and stops pain.

Motor Points:

Rhomboids, trapezius (all fibers), anterior deltoid, pectoralis minor.

Moxibustion

- Pole or direct moxa over local area to move Qi and Blood, and promote healing. Contraindicated if heat signs are present.
- Pole or direct moxa on SP 6 (Sanyinjiao), UB 17 (Geshu), UB 20 (Pishu), ST 36 (Zusanli), REN 6 (Qihai) to tonify Qi and Blood.
- Pole or direct moxa on DU 14 (Dazhui), ST 36 (Zusanli), SP 9 (Yinlingquan), ST 40 (Fenglong) to eliminate Wind-Cold-Damp.

THE SHOULDER

Muscle Motor Points: Muscles Acting on the Neck, Shoulder Girdle and Joint

The Neck

M: Semispinalis capitis

L: UB 10 (Tianzhu), located level with the spinous process of C1 in the depression on the lateral side of the trapezius muscle. Needle perpendicular to the skin .5-1 in.

M: Splenius capitis

L: Slightly inferior and lateral from GB 20 (Fengchi). GB 20 is located in the depression between the upper trapezius and sternocleidomastoid muscles, level with DU 16 (Fengfu). Needle perpendicular 1 in. towards the tip of the nose or contralateral UB 1 (Jingming).

M: Splenius cervicis

L: Bailao, located 2 cun above and 1 cun medial from DU 14 (Dazhui). Needle perpendicular 1-1.5 in. at a 45 degree angle towards the vertebral body.

M: Semispinalis cervicis

L: Huatuoji points of C3-C7. Needle perpendicular 1-1.5 in.

M: Sternocleidomastoid

L: Located between SI 16 (Tianchung) and LI 18 (Futu). Needle obliquely from SI 16 towards LI 18.

The Shoulder Girdle

M: Serratus anterior

L: One motor point located on each of the eight or nine heads of the serratus anterior muscle. All of the motor points are located on the mid-axillary line or slightly anterior, GB 23 (Zhejin) and SP 21 (Dabao) are two of the motor points. SP 19 (Xiongxiang) and SP 18 (Tianxi) are generally located 1 cun level and anterior to the other motor points. Needle obliquely to the skin .5-1 inch.

M: Levator scapulae

L: Dijia, located 1 cun posterior and .5 cun superior from SI 16 (Yingchuang). Needle perpendicular to the skin 1 in.

M: Rhomboid minor

L: At the level of the spinous process of T2, 2 cun lateral. Between UB 12 (Fengman) and UB 41 (Fufen). Oblique insertion threaded into the motor point .5-1 in.

M: Rhomboid major

L: At the level of the spinous process of T4, 2.5 cun lateral. Between UB 14 (Jueyinshu) and UB 43 (Gaohuangshu). Oblique insertion threaded into the motor point .5-1 in.

M: Trapezius - upper

L: GB21 (Jianjing) midway between DU 14 (Dazhui) and the acromion. Oblique insertion threaded from SJ 15 (Tianliao) to GB 21 (Jianjing), this direction avoids the pleural cavity. Aim for approximately .5 in. beneath the surface of the skin.

THE SHOULDER

M: Trapezius - middle

L: Level with the spinous process of T3, 2 cun lateral. Approximately between UB 13 (Feishu) and UB 42 (Pohu). Oblique insertion threaded into the motor point .5-1 in.

M: Trapezius - lower

L: Level with the spinous process of T5, 2 cun lateral. Approximately between UB 15 (Xinshu) and UB 44 (Shentang). Oblique insertion threaded into the motor point .5-1 in.

M: Pectoralis minor

L: Located approximately halfway between the ST 16 (Yingchuang) and SP 19 (Xiongxiang) in the third intercostal space. Needle perpendicular to the skin. Assess depth of the target tissue with finger palpation. **Caution is advised: the pectoralis minor is located on the anterior surface of the ribcage.**

The Shoulder Joint

M: Deltoid - anterior

L: Jianning, approximately halfway between the anterior axillary fold and LI 15 (Jianyu). Needle perpendicular to the skin .5-1 in.

M: Deltoid - posterior

L: Following the san jiao meridian, this point is 2 cun distal from SJ 14 (Jianliao), .5-1 cun posterior. Needle perpendicular to the skin .5-1 in.

M: Deltoid - middle

L: Approximately 3 cun distal from SJ 14 (Jianliao), .5 cun anterior. Needle perpendicular to the skin .5-1 in.

M: Pectoralis major (clavicular)

L: Stomach 14 (Kufang), in the first intercostal space, 4 cun lateral to the Ren meridian. Oblique insertion threaded into the motor point .5-1 in.

M: Pectoralis major (sternal)

L: Slightly lateral to ST 15 (Wuyi), in the second intercostal space, 4 cun lateral to the Ren meridian. Oblique insertion threaded into the motor point .5-1 in.

M: Latissimus dorsi

L: Two motor points:

1. Approximately 1 cun superior and lateral from the lower edge of the scapula. Oblique insertion parallel to the lateral scapular edge.

2. Below the lower edge of the scapula, slightly lateral to UB 47 (Hunmen), needle obliquely .5-1 in.

M: Teres major

L: Jiantongdian, directly medial to SI 9 (Jianzhen) on the lateral border of the scapula. Needle perpendicular to the skin 1-1.5 in. **Caution is advised: the ribcage is slightly medial to this point.**

M: Teres minor

L: Jian-Hou, half way between SI 9 (Jianzhen) and SI 10 (Naoshu). Needle perpendicular to the skin 1-1.5 in

M: Supraspinatus

L: SI 12 (Bingfeng). Needle perpendicular to the skin 1.5 in.

THE SHOULDER

M: Infraspinatus

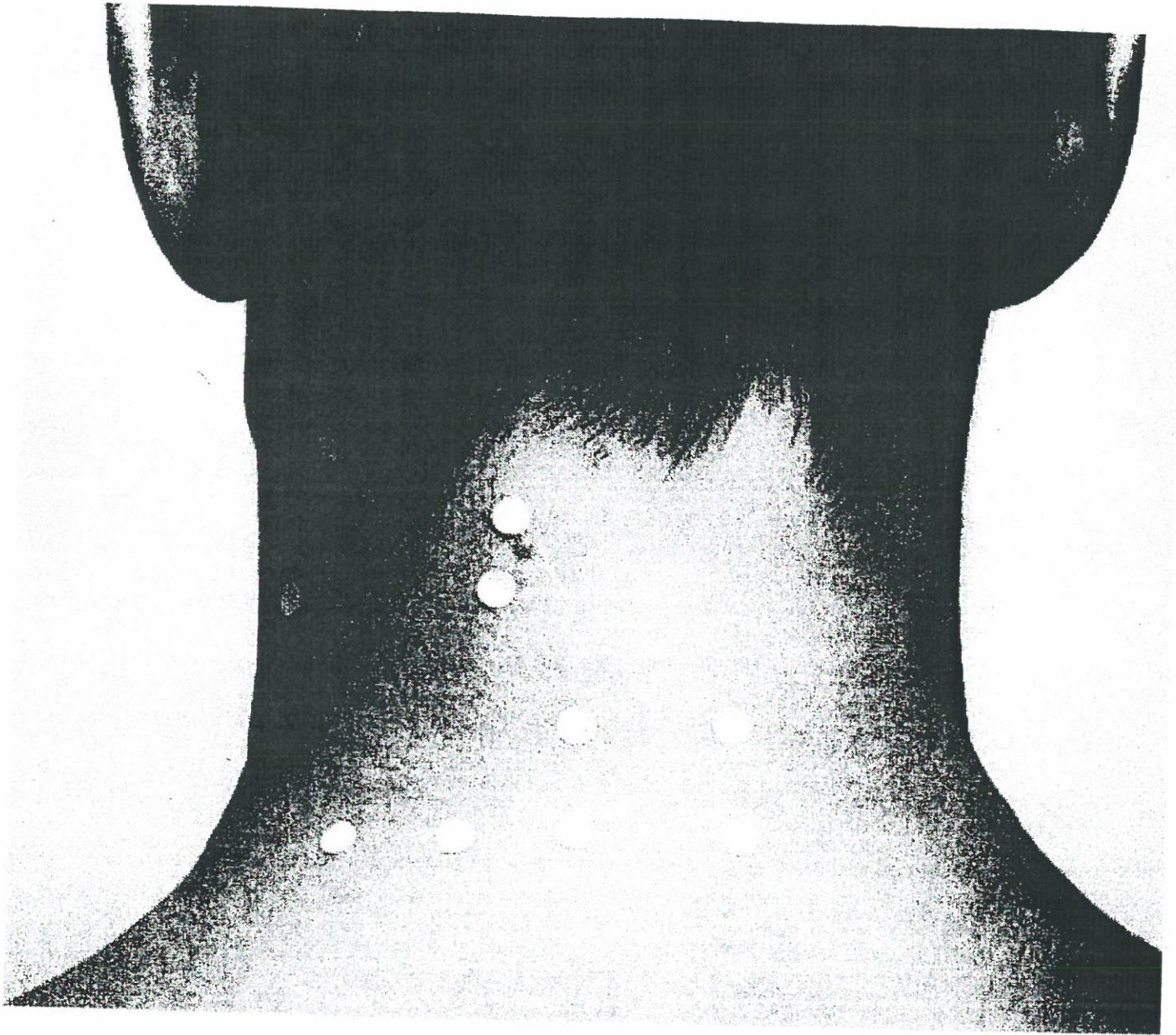
L: Two motor points:

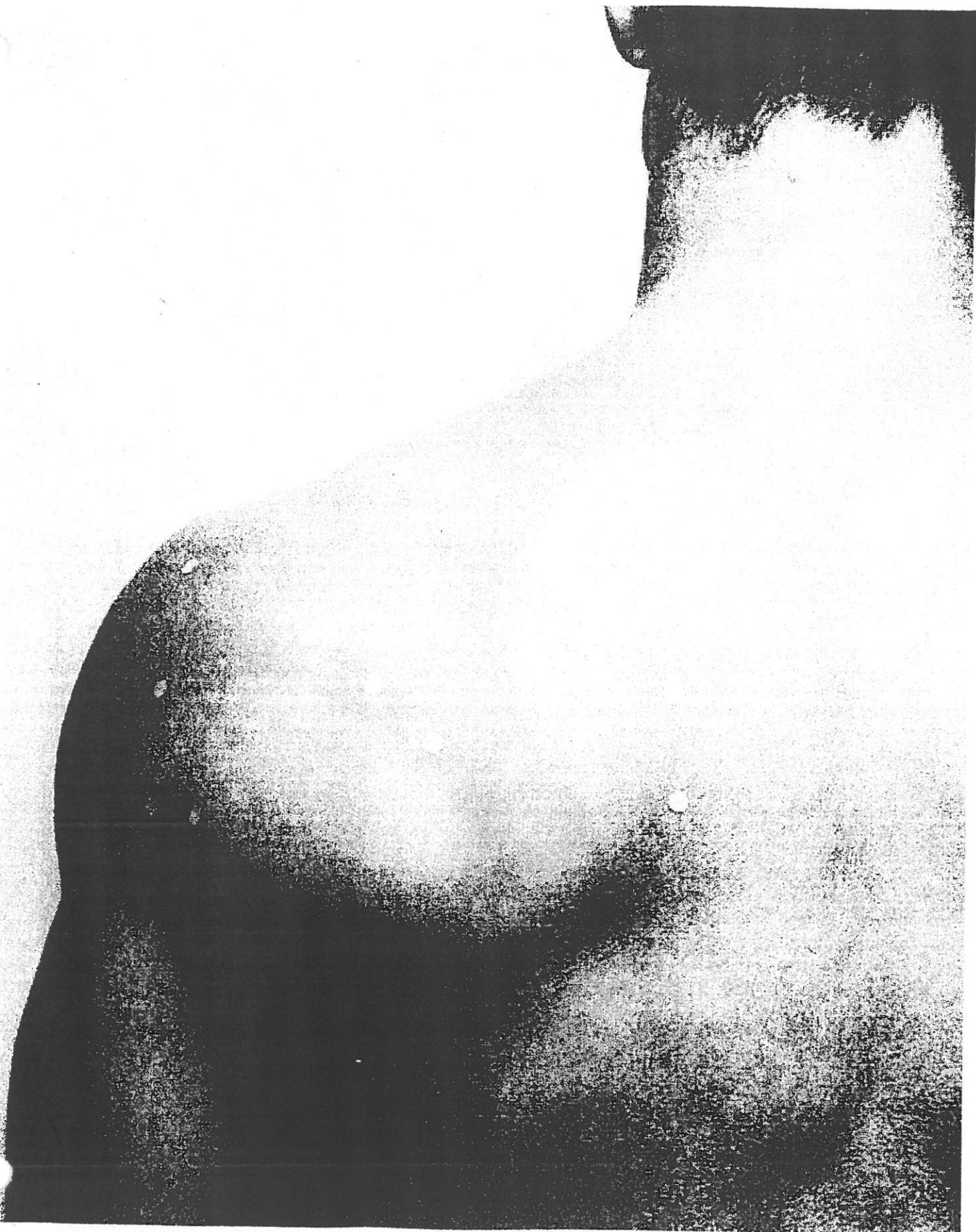
1) 1 cun superior and lateral to SI 11 (Tianzhong). Oblique inferio-medial insertion threaded into the motor point.

2) 1 - 1.5 cun inferior and medial to SI 11 (Tianzhong). Oblique superio-lateral insertion threaded into the motor point.

M: Subscapularis

L: On the anterior surface of the scapula, approx. 2 cun lateral and level with UB 43 (Gaohuangshu). From a posterior view, this point is .5-1 cun superiomedial from SI 11 (Tianzhong).





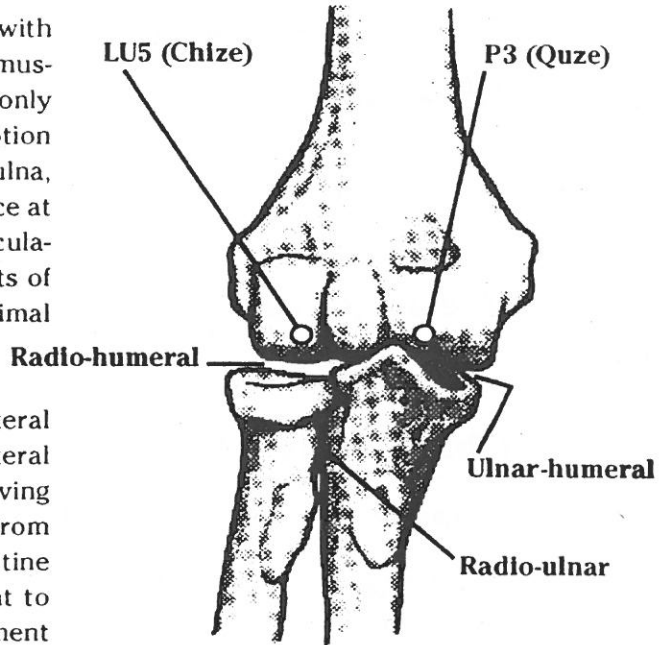


THE ELBOW

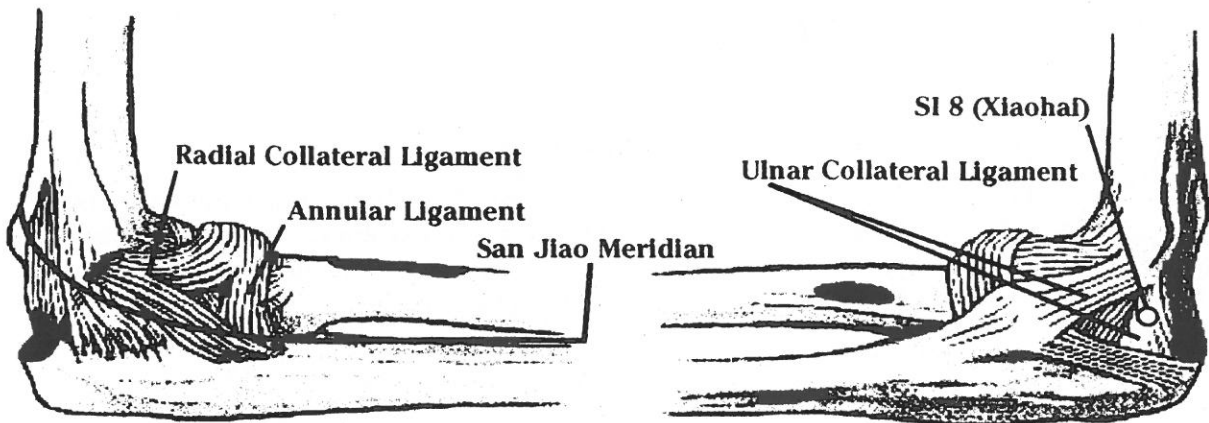
Elbow Anatomy

The elbow is considered a very stable joint with structural integrity and good ligamentous and muscular support. The elbow joint, as it is commonly referred to, is actually three joints that allow motion between the three bones of the arm (radius, ulna, humerus). Elbow flexion and extension take place at the ulnar-humeral and the radio-humeral articulations, while supination and pronation movements of the radius and the ulna take place at the proximal radio-ulnar articulation.

The elbow is supported on the medial and lateral sides by collateral ligaments. The ulnar collateral ligament connects the ulna to the humerus giving support to the elbow joint and resistance from medial stress. It is located on the small intestine meridian with SI 8 (Xiaohai) being the key point to affect this ligament. The radial collateral ligament connects the radius and humerus, located on the distal and inferior border of the lateral epicondyle on the san jiao meridian. This ligament is rarely involved in injury due to the lack of stress placed upon it. The annular ligament is an extension of the radial ligament that binds the proximal radial head and the ulna together. The palpable aspect of this ligament is located just below the radial collateral ligament on the san jiao meridian. This ligament is susceptible to injury due to the rotational forces placed upon it during supination and pronation movements. An indicator to annular ligament injury is pain upon active supination and pronation with elbow flexion. As with many elbow problems, these ligaments respond well to acupuncture and moxibustion treatment.



Three Joints of the Elbow



Lateral View

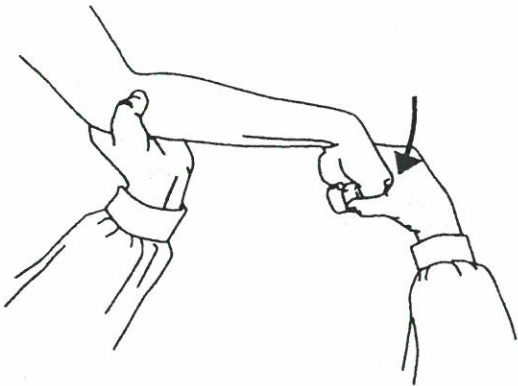
Medial View

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The Elbow: Orthopedic Physical Assessment

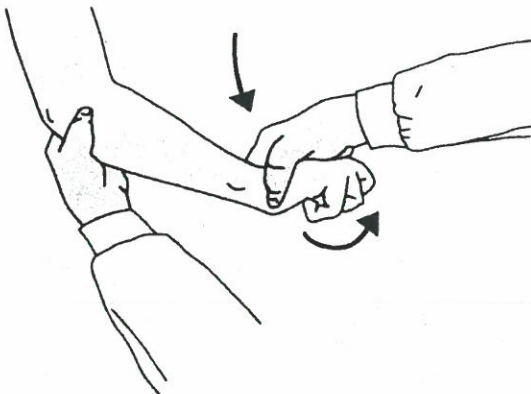
Orthopedic Evaluations

- **Mill's Test**
- **Cozen's Test**
- **Extensor Digitorum Communis (EDC) MMT**
- **Medial Epicondylitis Test**
- **Tinel's Sign**
- **Elbow Flexion Test**
- **Pronator Teres Syndrome Test**
- **Pinch Test**
- **Ligamentous Instability Test**



Mill's Test

The practitioner palpates the patient's lateral epicondyle while extending the elbow and flexing the wrist. The test is accentuated if the wrist is fully pronated with ulnar deviation, thus stretching the extensor muscles. The test is positive if pain is felt at the lateral epicondyle.



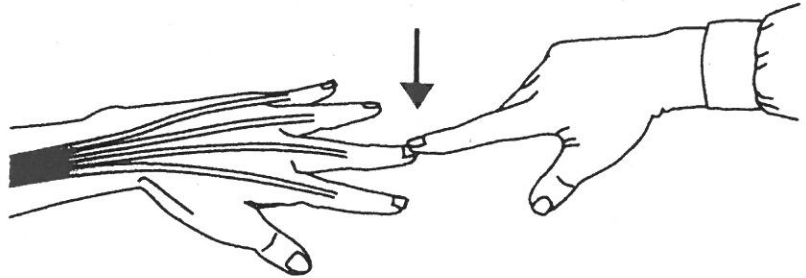
Cozen's Test

Place the elbow into extension and the wrist into extension with radial deviation. Pain upon resisted movement indicates a problem in the extensor carpi radialis brevis and longus.

THE ELBOW

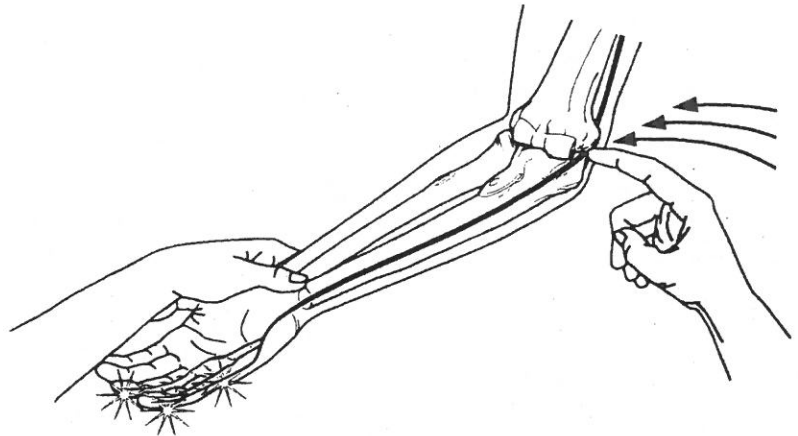
EDC MMT

This is a manual muscle test for the extensor digitorum communis muscle. Place the elbow, wrist and fingers into extension and a neutral position. Pain at the lateral epicondyle upon resisted movement to the middle finger indicates extensor digitorum communis muscle involvement.



Medial Epicondylitis Test

Place the patient's elbow and wrist into extension with the forearm supinated. The practitioner can increase stretch by further extending the fingers. A positive test is for pain at the medial epicondyle.

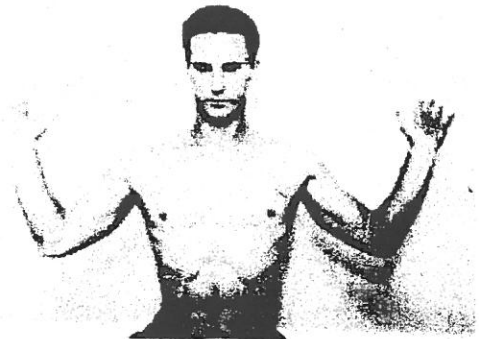


Tinel's Sign

Tap SI 8 (Xiaohai) repeatedly in the ulnar nerve groove located between the olecranon process and the medial epicondyle. Tingling, or parathesia, is a positive sign for ulnar nerve regeneration that may be from ulnar nerve entrapment at the elbow.

Elbow Flexion Test

The patient is asked to maximally flex the elbow and extend the wrist, as if holding a tray at shoulder level. The shoulder needs to be slightly abducted and lowered. This position should be held for 3-5 minutes, noting any tingling or parathesia within the ulnar nerve distribution covering the SI or HT meridian topography of the forearm or hand. A positive test usually indicates ulnar nerve entrapment in the cubital tunnel.

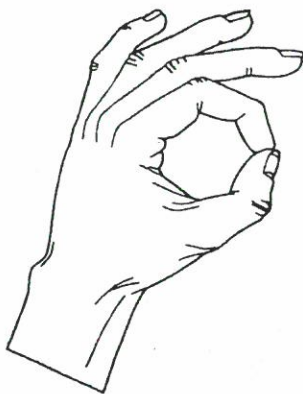


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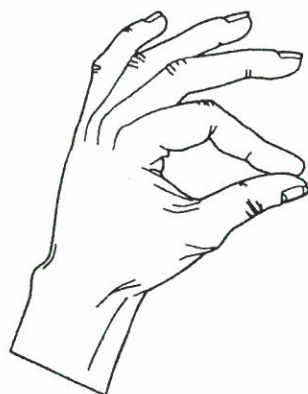


Pronator Teres Syndrome Test

With the patient sitting or supine, adduct the shoulder and flex the elbow to 60° with the palm pronated. The stabilization hand is under the elbow, holding the arm in position. The driving hand is around the distal aspect of the wrist where the line of drive is to create wrist supination and elbow extension. The patient is asked to allow a controlled eccentric contraction as the practitioner moves the wrist into supination and the elbow into extension, placing stress on the pronator teres and median nerve. A positive test will elicit tingling, or parathesia, within the median nerve distribution of the forearm or hand.



Normal



Abnormal

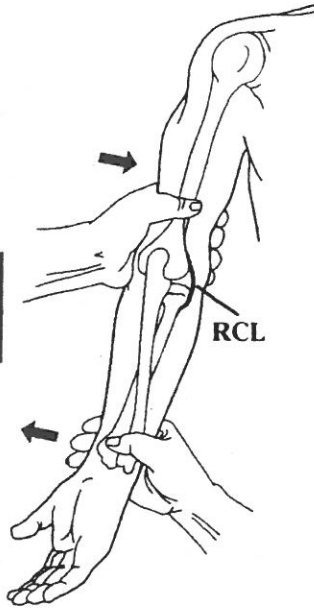
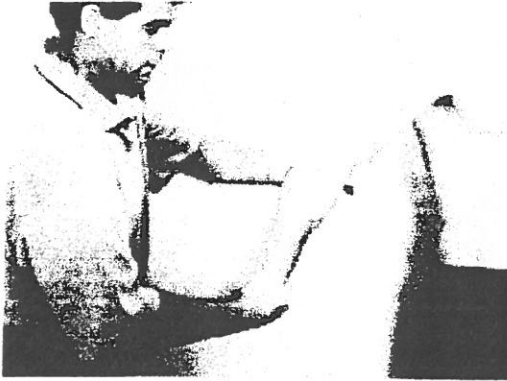
Pinch Test

The patient is asked to pinch the tips of the index finger and thumb together. A positive test is to notice a pulp-to-pulp contact between the index finger and thumb instead of the normal tip-to-tip. A positive test may indicate anterior interosseous involvement being trapped between the two heads of the pronator teres at the elbow.

THE ELBOW

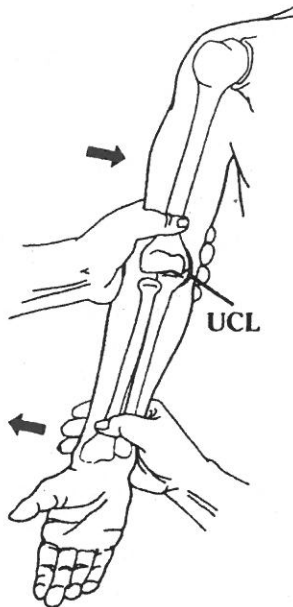
Ligamentous Instability Tests

In both of the following tests, the practitioner should note any laxity, stiffness or pain compared with the uninvolved side.



Varus Stress Test

This test is to challenge the radial collateral ligament (RCL). The patient's shoulder is internally rotated with the elbow held in 15-20° of flexion. The practitioner places one hand on the outside of the elbow (in this position it will be over the medial epicondyle) and the other hand on the distal ulnar side of the wrist near SI 4 (Wangu) - SI 6 (Yanglao) area. The practitioner applies a force inward from the outside of the elbow and an outward force with the hand on the wrist.



Valgus Stress Test

This test is to challenge the ulnar collateral ligament (UCL). The patient's shoulder is in a neutral position with the elbow in 15-20° of flexion with the forearm supinated. The practitioner places one hand on the outside and slightly superior to the elbow joint covering LI 12 (Zhouliao) while the other hand is on the inside of the wrist near HT 4 (Lingdao) - HT 7 (Shenmen) area. The practitioner applies a force medially with the hand on the lateral side of the elbow and laterally with the hand on the wrist.

THE ELBOW

Manual Muscle Testing: Muscles Acting on the Elbow

- **Biceps brachii**
- **Triceps**
- **Pronator teres**
- **Supinator**

Triceps Test: With the patient prone, flex the elbow to 45-60°, place the forearm in a pronated position with the palm facing inferiorly. The stabilizing hand is under the biceps muscle near the elbow, with the driving hand over the distal forearm, just proximal to SI 5 (Yanggu). The line of drive is into elbow flexion so that LI 5 (Yangxi) is directed medially.



Biceps brachii Test: With the patient supine, flex the elbow to approximately 75° with the forearm in supination so that the palm faces upward. The stabilizing hand is under the elbow, while the driving hand is around the distal wrist. The line of drive is into elbow extension or directing SJ 5 (Weiguan) toward the table.



Pronator teres Test: With the patient sitting or supine, adduct the shoulder and flex the elbow to 45° with the palm pronated. The stabilization hand is under the elbow. The driving hand is around the distal aspect of the wrist in which the line of drive is to create supination. Be aware of elbow flexion recruitment.



Supinator Test: With the patient supine, the patient's shoulder is forward flexed to 90° with the elbow in a supinated and fully flexed position. The practitioner places a stabilizing hand over the elbow with the other hand over the distal forearm. The patient is asked to keep in this supinated position as the practitioner tries to drive the wrist into pronation.



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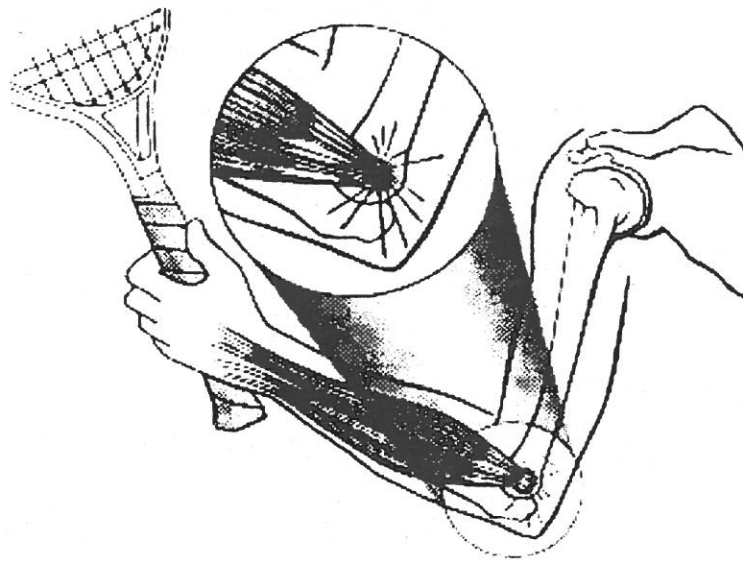
Common Injuries to the Elbow : Assessment and Treatment

Pain on the Outside of the Elbow

Lateral Epicondylitis

This injury commonly known as "tennis elbow," as the name implies, is a frequent injury among tennis players. The cause of lateral epicondylitis is from one-sided, repetitive motions that require the contraction of the finger and wrist extensors which occur in most racket sports or in occupations such as those of an electrician, a carpenter or a computer technician. The area of pain is mostly found directly on the lateral epicondyle or the tendinous attachments of the extensor muscles. The lateral epicondyle is a small bony protuberance and is the site of the extensor muscle attachment. With repetitive motions created by extensor muscle contraction, a high load of force is applied to the lateral epicondyle that can easily overburden this small attachment. The main muscles affected in tennis elbow are the extensor carpi radialis brevis (the most commonly afflicted), extensor carpi radialis longus, extensor carpi ulnaris and the e x t e n s o r digitorum communis. The diagnosis of lateral epicondylitis can usually be made from physical examination alone. There will be pronounced tenderness on or around the lateral epicondyle. X-rays of the elbow may be used if the symptoms suggest the possibility of a problem with the joint or calcification within the tendon.

Patients that continue to work through the pain for long periods of time are susceptible to angiofibroblastic degeneration. This is the result of scar tissue that is never allowed to mature with rest. As the patient continues to work through the pain, more scar tissue is laid down without it becoming fibrous, thus weakening the area with an inefficient and immature tissue.



THE ELBOW

Differentiation between lateral epicondylitis and radial nerve entrapment is needed where by the symptoms can mimic each other. If the patient has a persistent form of tennis elbow, a possible nerve lesion or cervical problem needs to be considered.

Supinator Syndrome/Radial and Posterior Interosseus Nerve Entrapment: The radial nerve is susceptible to entrapment where it passes through a narrow channel, termed the "Arcade of Frohse," located in the supinator muscle, deep to the LI 9 (Shanglian) and LI 10 (Shousanli) area. The symptoms are similar to lateral epicondylitis, which include pain, weakness and possible parathesia sensations. Location of pain, parathesia and weakness of the wrist, finger and thumb extension are key signs to nerve involvement. Pain is usually worse with resisted supination and is usually felt on the san jiao channel, located on the ulnar side of LI 8 (Xianlian) to LI 10 (Shousanli). This is different from lateral epicondylitis pain where the point of maximal tenderness is most often over the common extensor tendon attachment on the lateral epicondyle.

Assessment:

- Mills Test
- Cozen's Test
- Extensor Digitorum Communis (EDC) MMT
- Pain which mainly affects the outer aspect of the elbow. Radiation up and down the SJ and LI meridians is common. Pain over the lateral epicondyle with active wrist extension or wrist flexion that stretches the extensor muscles.
- Weakness in the wrist that disrupts the activities of daily living such as shaking hands, opening a door or lifting a coffee cup. Severe cases of lateral epicondylitis may have a loose bony fragment or myositis ossificans. An X-ray will determine this.

Note: *Observe the amount of pain or discomfort that was elicited at the lateral epicondyle during the assessment of the extensor muscles. Perform the test again after needling the motor point to the involved extensor muscle(s) and observe if there is a decrease in pain level at the lateral epicondyle. If this occurs, prognosis for a quicker rehabilitation time is good.*

Treatment

- Acupuncture
- Self-Stretching and Rehabilitative Exercises

Acupuncture-

Effective target tissue needling to choose from:

For suspected radial nerve entrapment, needle the supinator motor points located:

- In the pronated position, the point is deep to LI 9 (Shanglian). Needle perpendicular to the skin 1 in. The needle will pass through the extensor carpi radialis longus muscle.
- In the supinated position, the point is located approximately 1-1.5 cun distal from LU 5 (Chize) and .5 cun toward the radial side. Needle perpendicular to the skin 1 in.

Effective acupuncture points and combinations to choose from:

- DU 14 (Dazhui), LI 15 (Jianyu), LI 12 (Zhouliiao), LI 11 (Quchi), LI 10 (Shousanli), LI 4 (Hegu) - opens the channels, rids stagnation and relaxes the sinews.
- LI 9 (Shanglian), SJ 9 (Sidu) - local points to rid obstructions.

THE ELBOW

- Zhoushu: midway between olecranon and lateral epicondyle, enters anconeus muscle and triceps medial attachment.
- Sanchi: 3 points 1 cun directly above and below LI 11 (Quchi). Quchi is considered the middle point.

Motor Points:

Extensor carpi radialis brevis and longus, extensor digitorum communis, extensor carpi ulnaris and the supinator.

Self-Stretching and Rehabilitative Exercises:

Lateral epicondylitis is a common and often lingering pathologic condition. It is important as a practitioner that you progress your patient's rehabilitation only while they experience minimal pain. A general guideline is the more chronic the condition, the longer the recovery time. The rehabilitation process is sequential, and should be progressed with the patient feeling little or no pain. Exercises need to be prescribed with the goal in mind of training the patient back to a stronger level than before the activity that caused the pain. Regaining full strength and flexibility is critical before returning the patient back to previous levels of activity.

Self-Stretching

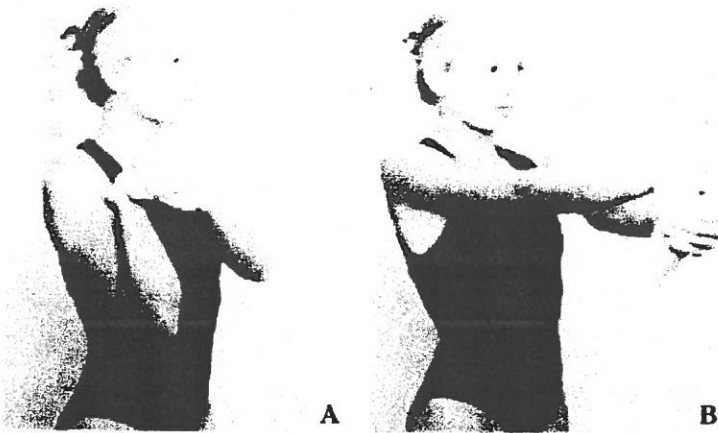


Photo A - Flex the elbow and wrist.

Photo B - Extend the elbow keeping the wrist flexed with ulnar deviation. The patient should feel the stretch in the wrist extensors near the elbow.

Rehabilitative Exercises:

Step 1

Goals: Decrease yang inflammation and promote tissue healing.

- Prepare for exercises with heat to warm the tissue and activate the yang qi or ice if yang inflammation is present.
- Gentle stretching exercises can be prescribed for both the extensors and flexors to maintain balance. This includes wrist flexion for lateral epicondylitis and wrist extension for stretching the wrist flexors.

THE ELBOW

- A strengthening program may begin with the use of isometric exercises that are effective in the early stages of injury management. These exercises help maintain strength without overstressing the tissue. Isometrics allows the muscles to stay toned by creating muscular contraction without any range of motion. Use in elbow flexion, extension and neutral positions.
- The use of resistive therapeutic putty can be used as long as pain is not elicited. This exercise allows muscle strengthening with little stress on the joints and soft tissues. Consider appropriate applications of PRICE, heat therapy and herbal internal/external medications to decrease yang inflammation and promote blood circulation.

Step 2

Goals: *Strengthen muscle groups and improve tissue flexibility.*

- As the pain begins to diminish, usually within 2-4 weeks of initial treatment, a progressive resistive exercise program is begun with the goal of strengthening muscle groups.
- Gradually, isotonic exercises are introduced, which involve the muscles working against resistance through the available range of motion. Free weights or exercise bands may be used.
- Wrist extension exercise. Place 1 lb. weight in the hand with palm facing downward (pronated); support the forearm at the edge of a table or on the knee, so that only the hand can move. Extend and flex the wrist slowly performing concentric and eccentric contractions. Gradually work up to heavier weights with little or no pain during the exercise.

Step 3

Goal: *Increase strength and endurance training.*

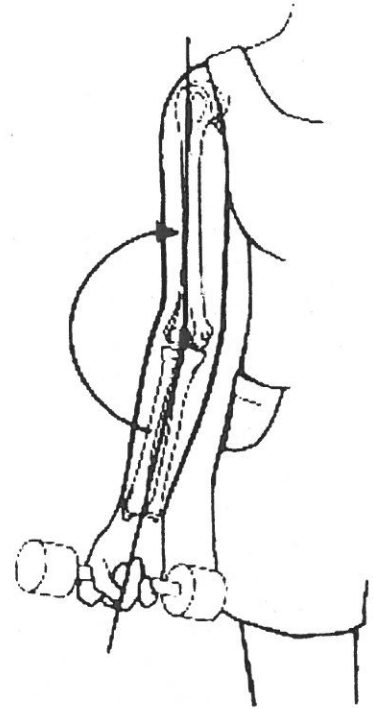
- Prescribe functional activities. In this stage of rehabilitation, the patient is feeling minimal or no pain from the previously prescribed exercises. This is the final stage of the rehabilitation, and is no less important than any other stage. Usually, patients in this stage are so eager to get back to their routine or activity, that they forget they haven't prepared themselves completely for the functional activity that caused the initial injury; their occupation or sporting activity. As practitioners, we need to remind the patient of the activity that created the injury, and that the goal of this final stage of rehabilitation is to strengthen the muscles in order to perform their desired activity. We want to increase the patient's strength and endurance to a level higher than prior to the initial injury. Basically, we are training the patient back to their functional activity. It is important as practitioners that we don't release the patient prematurely, before they are completely pain-free during the activity that caused the injury.
- Increase the isotonic exercises with high repetitions and a low weight as this builds endurance. Have the patient return to the desired activity at 25% of timing and intensity. For example, if the patient was playing one hour of tennis, decrease to 15 minutes with slowly hitting the ball. Let pain be your guide; if the patient doesn't experience any pain, gradually increase timing and intensity of activity. Consider the applications of ice and heat after the exercise to control yang inflammation and increase yang qi.

THE ELBOW

Pain on the Inside of the Elbow

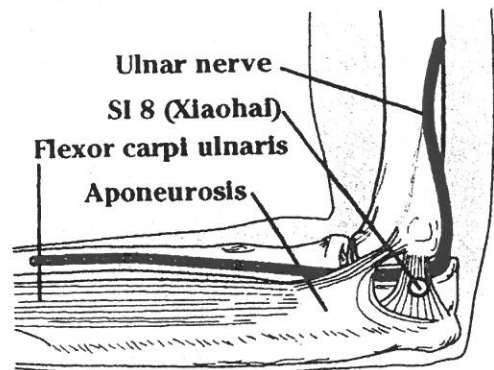
Medial Epicondylitis

Activities that require a repetitive motion of wrist flexion put stress on the flexor attachment which is often the cause of medial epicondylitis. As with the same mechanics that creates lateral epicondylitis, the muscles tense and pull against the tendinous attachment of the medial epicondyle resulting from an imbalanced activity of wrist flexion. Pain and inflammation are the primary symptoms located at the medial epicondyle. Chronic re-injury from repetitive over use may prevent the healing process to develop an immature scar tissue foundation that remains weak and painful. The diagnosis of medial epicondylitis can usually be made from physical examination alone as there will be pronounced tenderness at or around the medial epicondyle. Observe if the patient has a large carrying angle predisposing the medial elbow to stress. Differentiation between medial epicondylitis and ulnar nerve entrapment (Tinel's Sign) is needed in which the symptoms can mimic each other. Numbness in the 4th and 5th fingers usually indicates nerve entrapment.



A large carrying angle can predispose the elbow to medial epicondylitis

Ulnar Nerve Entrapment: the ulnar nerve can become entrapped around the medial aspect of the elbow causing pain much like medial epicondylitis. Common areas for entrapment are at the cubital tunnel located at SI 8 (Xiaohai) and the aponeurosis of the flexor carpi ulnaris muscle just distal to the medial epicondyle.



Thrower's Elbow/Little Leaguer's Elbow: Throwing a baseball places a vigorous stress on the medial aspect of the elbow as the wrist is forcefully pronated while releasing the ball. The force of the throw is transmitted up the arm to the weakest part of the muscle group attachment, that being the medial epicondyle. In growing adolescents, the attachment site for the muscles is on a growth area, or epiphysis, which is considerably weaker than the adjacent bone. Increased tension on the epiphysis results in pain and stiffness around the medial epicondyle or possibly a fissure of the bone. An X-ray will determine this.

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Assessment:

- Elbow Flexion Test
- Medial Epicondylitis Test
- Pain which mainly affects the inner aspect of the elbow. Radiation up and down the HT and SI meridians of the forearm is common.
- Pain over the medial epicondyle with MMT of the wrist flexors or passive wrist extension that stretches the flexor muscles.
- Pain and weakness in the wrist from any activities that require wrist flexion.
- Severe cases of medial epicondylitis may have a loose bony fragment or myositis ossificans. An X-ray will determine this.
- Consider the age of the patient and history of activity. An adolescent involved in throwing sports may have torn off part of the epiphysis.

Treatment

- Acupuncture

Acupuncture-

Effective acupuncture points and combinations to choose from:

- SI 3 (Houxi), SI 7 (Zhizheng), SI 8 (Xiaohai), SI 11 (Tianzong), HT 3 (Shaohai) - local points to relax the tendons and remove local obstructions.
- SI 6 (Yanglao) - xi cleft to open the meridian.
- LIV 3 (Taichong), GB 34 (Yanglingquan), SJ 4 (Yangchi), LI 11 (Quchi), SI 8 (Xiaohai) - relaxes the sinews and strengthens the arms.
- Bizhong - enters musculotendinous junction of the flexor carpi radialis muscle.

Motor Points:

Pronator teres, flexor carpi ulnaris, flexor carpi radialis, palmaris longus

Note: *Observe the amount of pain or discomfort that was elicited at the medial epicondyle during the assessment of the flexor muscles. Perform the test again after needling the motor point to the involved flexor muscle(s) and observe if there is a decrease in pain level at the medial epicondyle. If this occurs, prognosis for a quicker rehabilitation time is good.*

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Pronator Teres Syndrome

Pronator teres syndrome involves an entrapment of the median nerve at the elbow usually resulting from repetitive exercises that require forced pronation such as swimming, surfing, throwing sports, racket sports or weight lifting. Hypertrophy of the biceps brachii and/or pronator teres can create a nerve impingement as it travels between the ulnar and humeral head of the pronator teres or the fibrous extension of the biceps tendon, the lacertus fibrosus. The patient may complain of tiredness or heaviness in the forearm that may advance into a dull aching pain in the anterior forearm with activity. There may be a parathesia sensation along the proximal anterior forearm usually traveling along or near the pericardium meridian.

Anterior Interosseous Syndrome: is a fairly uncommon syndrome and is not seen as often as the latter. The anterior interosseous nerve is a branch off of the median nerve and may also be entrapped between the two heads of the pronator teres muscle. Symptoms include weakness of the pinch mechanism between the thumb and forefinger, diagnosed with the pinch test.

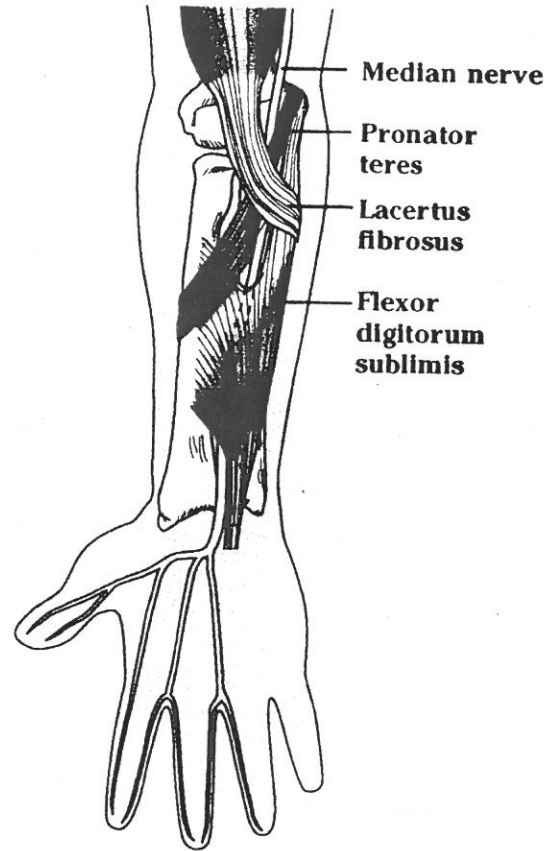
Note: *Pronator teres syndrome can mimic carpal tunnel syndrome symptoms in which a definitive diagnosis must be made.*

Assessment -

- Pain and tenderness in the anterior medial aspect of the elbow. Usually located within 3-4 cun distal from HT 3 (Shaohai), P 3 (Quze) and LU 5 (Chize).
- Possible parathesia or numbness of the second, third and radial half of the fourth finger.
- Pinch test may be positive, indicating an entrapment of the anterior interosseous nerve.
- Pronator Teres Syndrome Test.
- MMT of the pronator teres muscle may reproduce the symptoms, hold at least 30 seconds.
- Symptoms reproduced with resisted elbow flexion and supination with the elbow flexed at 120 to 130°, indicating tightness of the lacertus fibrosus.

Treatment -

- Acupuncture



THE ELBOW

Acupuncture:

Effective acupuncture points and combinations to choose from:

- P2 (Tianquan), P3 (Quze), P4 (Ximen) - opens and rids the meridian of obstruction.
- HT3 (Shaohai), SI 8 (Xiaohai) - local points to rid obstruction.
- SI 7 (Zhizheng), HT 7 (Shenmen) - source/luo combination.

Motor Points:

Pronator teres, Supinator, Biceps brachii (both heads), Flexor carpi ulnaris

Pain in the Back of the Elbow

Triceps Muscle/Tendon Strain

Triceps tendinitis is usually caused by excessive overuse from forceful elbow extension such as in a tennis backhand stroke or in a forceful lengthening contraction (eccentric) of the triceps as in the downward phase of a push-up. An activity that an individual starts or increases in intensity, such as weight training, can overload the soft tissue, resulting in a muscle sprain and tendon strain. Pain and inflammation is usually found near SJ 10 (Tianjing) or the extra point Zhoushu located midway between the olecranon and lateral epicondyle.

Assessment:

- Palpable ah-shi pain will usually be found at the site of the strain. Muscle sprains are commonly found around the musculotendinous junction; tendon strain around SJ 10 (Tianjing).
- Muscle sprains and tendon strains usually present Qi and blood stagnation symptomology. Sharp pains are elicited at the involved site when the concerned muscle group is contracted. Dull aching pain with passive movement.
- MMT of the triceps may elicit pain.

Treatment

- Acupuncture

Acupuncture

Effective acupuncture points and combinations to choose from:

- Zhoushu - located midway between the olecranon and lateral epicondyle.
- DU 14 (Dazhui), SJ 14 (Jianliao), SJ 10 (Tianjing), SJ 7 (Huizong), SJ 4 (Yangchi) - opens the channels, rids stagnation and relaxes the sinews.
- SI 11 (Tianzhong), SI 12 (Bingfeng), GB 30 (Huantiao) - removes stagnation systemically, rids obstructions from the upper extremity.

Motor points:

Triceps long, lateral and medial heads.

THE WRIST

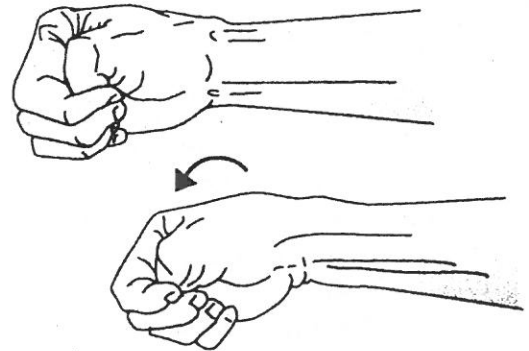
The Wrist: Orthopedic Physical Assessment

Orthopedic Evaluations

- **Finkelstein's Test**
- **Phalen's Test**
- **Reverse Phalen's Test**
- **Thenar Eminence Test**

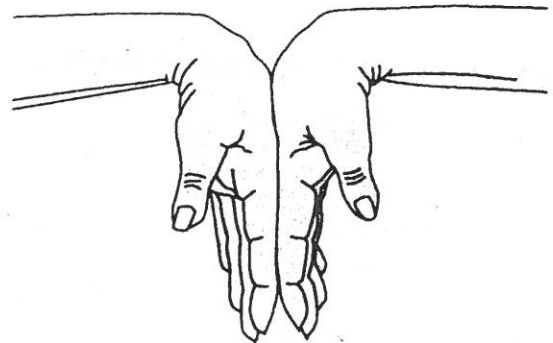
Finkelstein's Test

The patient holds the thumb in the palm with the fingers flexed around it, while the wrist is deviated to the ulnar side. The abductor pollicis longus and extensor pollicis brevis tendons are stretched in this position. This test is best performed with the wrist in a neutral position between flexion and extension before the ulnar deviation is performed.



Phalen's Test

The patient flexes their wrist maximally so that the wrists are pushed together with the fingers extending downward. The forearm should be held at a 90° angle from the wrists with this position held for 30-60 seconds. A positive test is the reproduction of the patient's carpal tunnel symptoms of numbness and/or tingling into the median nerve distribution: the thumb, index finger, middle finger and the radial half of the ring finger.



Reverse Phalen's Test

The patient flexes their wrists maximally so that they are pushed together with the fingers extending upward into a prayer position. The forearm should be held at a 90° angle from the wrists with this position held for 30-60 seconds. A positive test is the reproducing of the patient's carpal tunnel symptoms of numbness and/or tingling into the median nerve distribution: the thumb, index finger, middle finger and the radial half of the ring finger.

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Thenar Eminence Test

A thenar eminence, or "O" ring test, is positive when the affected side tests weak from swelling and impingement of the median nerve, disrupting the innervation, causing weakness of the abductor pollicis brevis, opponens pollicis and flexor pollicis brevis (superficial head) muscles. Approximating the radius and ulna by having the patient squeeze these two bones together with their other hand, increases the circumference of the carpal tunnel, therefore taking pressure off of the median nerve and allowing adequate impulses to the affected muscles.

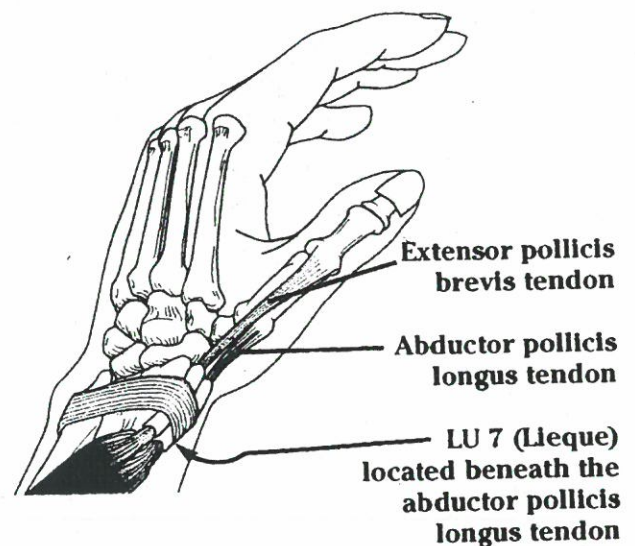
"O" ring test step-by-step:

- 1) Have the patient put the tips of the little finger and thumb together to form a ring.
- 2) Practitioner places 1-2 fingers inside of the ring with the thumbs on top. The more fingers the practitioner uses in the assessment of strength the more reliable the information perceived.
- 3) The patient is asked to hold the finger tips together. The practitioner pulls the finger tips apart slowly to get an accurate assessment of the patient's strength.
- 4) Have the patient approximate the radius and ulna together by firmly squeezing these two bones together with their other hand. The practitioner re-tests the patient's thenar eminence strength while the wrist is approximated. If the strength increases, the pronator quadratus needs to be needled (*see Carpal Tunnel Syndrome*).

Common Injuries to the Wrist: Assessment and Treatment

De Quervains Syndrome

De Quervains syndrome is a tenosynovitis of the extensor pollicis brevis and abductor pollicis longus tendons located in the region of LU 7 (Lieque) at the level of the styloid process. Activities or occupations that require repetitive pinching with the thumb or a forceful grasp of the hand coupled with excessive ulnar deviation such as in golf, fly fishing, squash and badminton are susceptible to developing this syndrome. Activities such as these put stress on the tendons as they pass through a fibro-osseous canal formed by the styloid process and the wrist retinaculum resulting in inflammation of the synovial sheath.



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Assessment:

- Finkelstein's Test
- Tenderness of the radial styloid process and swelling of the affected tendons.
- MMT of the abductor pollicis longus and or the extensor pollicis brevis will cause pain.

Treatment

- Acupuncture

Acupuncture -

Effective acupuncture points and combinations to choose from:

- LI 5 (Yangxi), LI 6 (Pianli), LI 11 (Quchi), LU 7 (Lieque), LU 6 (Kongzui), SJ 4 (Yangchi) - local points to rid obstruction in the meridians, relax the tendons.
- LIV 3 (Taichong), LIV 8 (Ququan), GB 34 (Yanglingquan), ST 36 (Zusanli), SP 6 (Sanyinjiao), UB 18 (Ganshu) - nourish the Qi and blood, relaxes the tendons.
- SI 11 (Tianzhong), SI 12 (Bingfeng), GB 30 (Huantiao) - removes stagnation systemically, rids obstructions from the upper extremity.

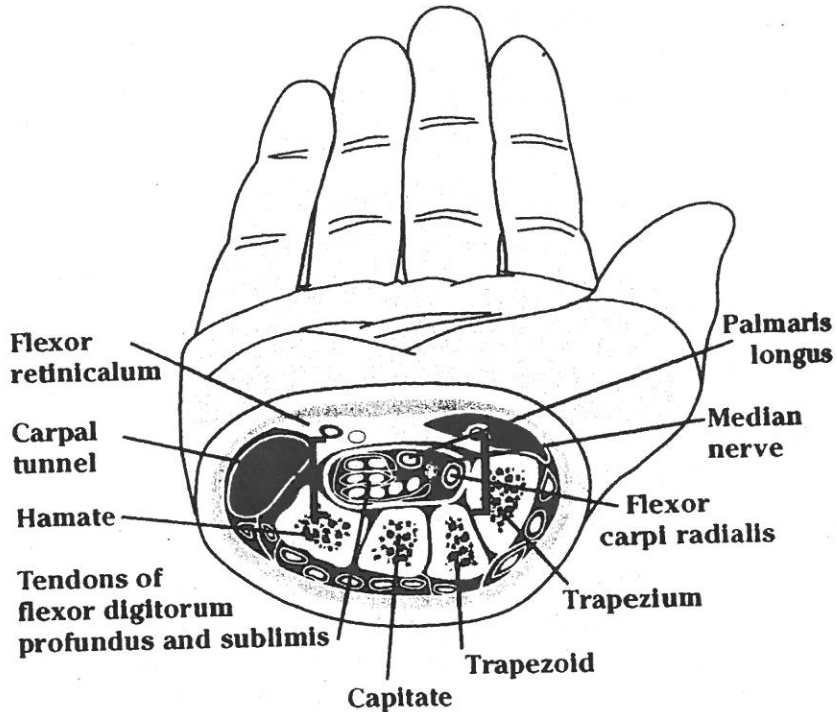
Motor points:

Abductor pollicis longus, extensor pollicis brevis and brachioradialis

Carpal Tunnel Syndrome

Carpal tunnel syndrome is produced by compression of the median nerve at the wrist usually caused by an overuse activity that requires repetitive flexion and extension of the wrist such as in racketball or badminton. Office workers can also be afflicted as the wrist is held in various positions other than in a neutral one for long periods of time.

When examining the carpal tunnel from a supinated position, the floor of the carpal tunnel is formed by the capsular tissue that lies on the palmar surface of the capitate and hamate bone; the roof is



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the flexor retinaculum ligament that extends from the pisiform bone to the hook of the hamate bone. P 7 (Daling) intersects the middle of the retinaculum. Acute or chronic inflammation can reduce the space in this tunnel so that the nerve is subjected to pressure.

Tenosynovitis is commonly found in repetitive overuse conditions as it narrows and increases the pressure within the canal. This can cause a persistent dull ache with radiating pain and numbness in the thumb, index, middle and half of the ring finger.

The symptoms generally get worse at night, and the sensation is often described as one of the hand having "gone to sleep" and may be relieved with shaking or letting the hands dangle out of bed. There may be associated morning stiffness that is alleviated with activity. Numbness, tingling and a burning sensation may initially be felt only in the fingertips of the thumb, first, second and the radial half of the ring finger. As the condition progresses, sensory changes can radiate into the palm and forearm. Symptoms are reproduced when direct compression is applied over the median nerve in the carpal tunnel for about 30 seconds.

Note: The patient may have seen a neurologist prior to seeking acupuncture treatment. Electrodiagnostic testing is useful to ascertain information as to whether there is an entrapment of the median nerve such as stemming from pronator teres syndrome or radiculopathic pain from a cervical origin. If not, then a differential diagnosis is necessary.

Assessment -

- Phalen's Test
- Reverse Phalen's Test
- "O" ring test or Thenar Eminence Test
- Tinel's Test
- Pregnancy, diabetes, hypothyroidism and rheumatoid arthritis are also contributing factors that can develop carpal tunnel syndrome.
- Foraminal Compression, Jackson's and Spurling test to check for cervical involvement.
- Pronator teres Test
- Pectoralis Minor Shortness Test: forward rounded shoulders can offset the mechanics of the upper extremity.

Treatment

- Acupuncture

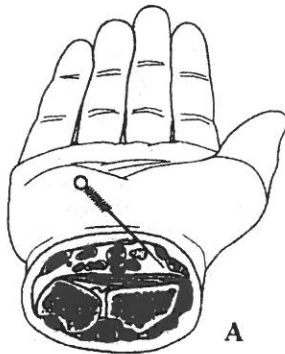
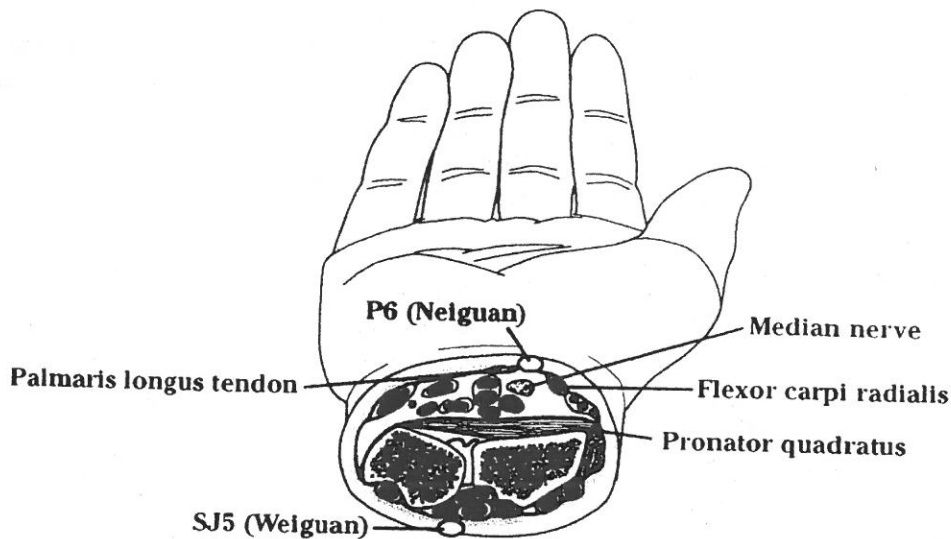
Effective target tissue needling to choose from:

- P7 (Daling) inserted in an oblique direction approximately 30° angle in the direction of the meridian .5-1 cun. Enters the flexor retinaculum.

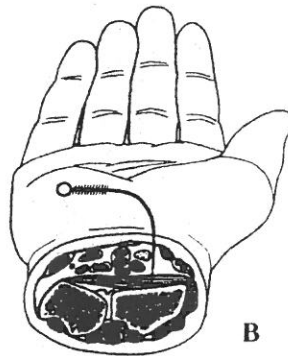
THE WRIST

Needle technique for the pronator quadratus:

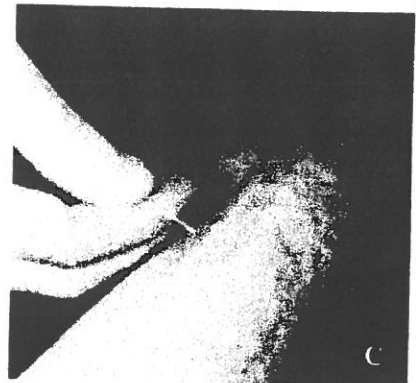
- 1) With the forearm in a relaxed and supinated position, locate P6 (Neiguan) and the tendons of the flexor carpi radialis and palmaris longus.
- 2) At an angle of approximately 30°, insert the needle obliquely from P6 (Neiguan) under the flexor carpi radialis (FCR) tendon in the direction of LU 7 (Lieque) .5 cun. The needle will pass under the FCR and above the median nerve. If the patient feels a sharp shooting nerve pain, then withdraw and re-insert the needle at a lesser angle. If the patient is experiencing very little discomfort or feels a light Qi or parathesia sensation into the hand, then proceed to the next step. (Diagram A)
- 3) Once the needle is under the flexor carpi radialis and the median nerve has been by passed, withdraw the needle slightly and then bend the needle so that the tip is directed downward toward the dorsal aspect of the forearm.
- 4) Insert the needle along the bend of the needle in a downward direction approximately .5-1 inch or until a dull-aching sensation is felt. The needle tip is now in the pronator quadratus motor point; obtain qi at this level. (Diagram B, C)



Insert the needle approximately at a 30° angle under the FCR and above the median nerve.



Withdraw the needle slightly, then bend the needle while inserting it downward to enter the pronator quadratus motor point.



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Effective acupuncture points and combinations to choose from:

- SI 11 (Tianzhong), SI 12 (Bingfeng), GB 30 (Huantiao) - removes stagnation systemically, rids obstructions from the upper extremity.
- SJ 4 (Yangchi), SJ 8 (Sanyangluo), P 8 (Laogong), P 7 (Daling), P 4 (Ximen), P 3 (Quze) - points to remove obstructions in the opposing meridians.
- LI 5 (Yangxi), P 7 (Daling), SI 5 (Yanggu), SJ 4 (Yangchi) - points to rid local obstructions.
- SP 5 (Shangqiu), SP 6 (Sanyinjiao), SP 9 (Yinlingquan) - rids damp stagnation.
- Huatuojiayi C6-T1 - benefits the upper extremity.

Motor points:

Rhomboids, trapezius (all fibers), pectorals major and minor, pronator teres, abductor digiti minimi, opponens pollicis or abductor and flexor pollicis brevis.

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Muscle Motor Points: Muscles Acting on the Elbow and Wrist

- M:** Tricep (long head)
L: 1 cun lateral and 2 cun distal from the posterior axillary fold. Needle perpendicular to the skin .5-1 in.
- M:** Tricep (lateral head)
L: 2-2.5 cun lateral from the motor point of the tricep long head. Needle perpendicular to the skin .5-1 in.
- M:** Tricep (medial head)
L: SJ 12 (Xialuo) 3 cun inferior from the motor point of the tricep long head. Needle perpendicular to the skin .5-1 in.
- M:** Biceps brachii (short head)
L: .5 cun medial to P 2 (Tianquan). Needle perpendicular to the skin .5-1 in.
- M:** Biceps brachii (long head)
L: Two motor points:
1) LU 3 (Tianfu) or slightly to the ulnar side. Needle perpendicular to the skin .5-1 cun.
2) .5 cun distal and slightly toward the ulnar side from LU 4 (Xiabai). Needle perpendicular to the skin .5-1 in.
- M:** Anconeus
L: 1 cun distal and lateral (towards the radial side) from the tip of the olecranon process. Needle perpendicular to the skin .5 cun.
- M:** Brachioradialis
L: Two motor points:
1) Approximately half way between LI 11 (Quchi) and LU 5 (Chize). Needle perpendicular to the skin 1-1.5 cun, thread the needle from LI 11 (Quchi) towards LU 5 (Chize).
2) LU 6 (Kongzui) located 5 cun distal from LU 5 (Chize) on the line joining LU 9 (Taiyuan). Needle perpendicular to the skin .5 cun.
- M:** Extensor carpi radialis longus (3 M.P.)
L: All three motor points in close proximity to LI 9 (Shanglian), located 3 cun distal from LI 11 (Quchi) on a line joining LI 5 (Yangxi). Needle perpendicular to the skin .5 cun.
- M:** Extensor carpi radialis brevis
L: .5 cun to the ulnar side of LI 8 (Xialian). Needle perpendicular to the skin 1 inch.
- M:** Extensor digitorum (4 M.P.)
L: All four motor points are situated in an area located 1 cun to the ulnar side of LI 8 (Xialian) and LI 9 (Shanglian). Needle perpendicular to the skin .5 inch.
- M:** Extensor carpi ulnaris (3 M.P.)
L: All three motor points are located in close proximity to approximately .5 cun to the ulnar side of SJ 9 (Sidu). Needle perpendicular to the skin .5 inch.
- M:** Supinator
L: Two motor points:
1) In the pronated position, the point is deep to LI 9 (Shanglian). Needle perpendicular to the skin 1 inch. The needle will pass through the extensor carpi radialis longus muscle.
2) Approximately 1-1.5 cun distal from LU 5 (Chize) and 1 cun towards the radial side. Needle perpendicular to the skin 1 inch.

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M: Flexor carpi ulnaris

L: At the junction of the middle and proximal thirds from a line joining the medial epicondyle and SI 5 (Yanggu). Needle perpendicular to the skin .5 inch.

M: Pronator teres

L: The distal tip of an equal sided triangle drawn from HT 3 (Shaohai) and P 3 (Quze). Needle perpendicular to the skin .5-1 inch.

M: Pronator quadratus

L: Deep to P6 (Neiguan) and slightly to the radial side. Oblique insertion angled under the flexor carpi radialis tendon .5 inch deep. Bend needle to make tip point downward and insert the needle .5 inch.

M: Flexor carpi radialis

L: 3 cun distal from P3 (Quze) on a line joining P3 and HT 7 (Shenmen).

M: Palmaris longus

L: At the junction of the middle and proximal thirds from a line joining the medial epicondyle and P7 (Daling). Needle perpendicular to the skin .5 cun.

M: Flexor digitorum superficialis

L: .5 - 1 cun to the ulnar side of P4 (Ximen). Needle perpendicular 1 inch.

M: Extensor pollicis brevis

L: .5 cun to the radial side of SJ 8 (Sanyangluo). Oblique insertion along the radial border of the ulna .5-1 cun. The needle will pass through the ext. carpi ulnaris muscle.

M: Abductor pollicis longus

L: Slightly distal and to the ulnar side of LI 7 (Wenliu). Oblique insertion towards the san jiao meridian. The needle will pass through the ext. carpi ulnaris muscle.