

SADDLE JOINT PAIN SYNDROME

The saddle (carpometacarpal or trapeziometacarpal) joint of the thumb is the body's least stable joint. It is called a saddle joint because of the way the concave surface of the proximal head of the metacarpal articulates or sits on the convex surface of the trapezium bone, much like a rider setting an English saddle. For the most part, a thick but loose capsule (lined with a synovial membrane), maintains the articulation. It is reinforced dorsally by the volar ligament, which runs from the volar beak of the metacarpal to the trapezium. The strength of this ligament alone is responsible for the low incidence of serious subluxation or dislocation of this joint (volar metacarpal *beak* fracture is more common).

The various tendons that cross the joint, including those from the flexor pollicis longus and brevis, abductor pollicis brevis and longus, and extensor pollicis longus and brevis, also provide some stability. On the palmar side, the thenar muscle group placement also affords some support. Although innately unstable, the saddle joint's unique design permits joint flexion, extension, abduction, adduction, rotation and circumduction, making it the most dexterous of joints.

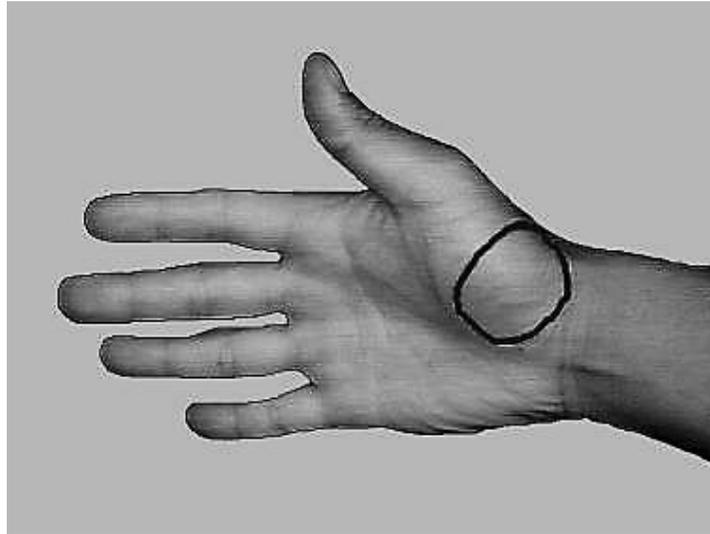
Although serious subluxation and dislocation of the saddle joint are rare, vulnerable capsular and ligamentous supports make it prone to long-term wear and tear problems, especially among those individuals who use their hands a great deal. Certain occupations put enough stress on the saddle joint to cause the lateral ligaments and capsule to stretch, allowing the proximal metacarpal head to push off the trapezium, putting painful pressure on the lateral supportive tissues. For all practical purposes, it becomes the thumb's version of the big toe's *bunion* formation. Subluxation causes inflammation with its associated pain and dysfunction. In advanced stages, any real gripping with the thumb may become prohibited by pain, making it nearly impossible to shake hands, lift objects of any weight, or to perform many kitchen or clerical duties. This affliction is fairly common among pianists, massage therapists, carpenters, homemakers, and those who frequently write by hand and have a habit of using a great deal of thumb pressure when grasping the pen or pencil (teachers are often good examples). *Saddle joint pain* is sometimes associated or confused with the *Carpal Tunnel Syndrome*. Tendonitis of the extensor or abductor tendons as they cross the saddle joint is common.

A DSR survey of the saddle joint area should be performed to confirm the presence of an inflammatory process.

Treatment

Application:

- Preset an electrical stimulation unit to deliver a medium frequency current with a duty cycle of 10-seconds on and 10-seconds off. Place a negative electrode over the saddle joint and a positive over the wrist extensor muscles. Adjust the amplitude to produce a near tetanic contraction of the forearm muscles. Electrical stimulate for 15 minutes.
- Manipulate the soft tissues in and around the saddle joint, with the thumb alternately distracted and undistracted, to eliminate any adhesions that may be present.
- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.5 W/cm². Distract the saddle joint and ultrasound it, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes.
- Preset the electrical stimulation unit to deliver a 7 Hz, wide-pulsed galvanic current. Place a positive electrode over the saddle joint and a negative electrode over the wrist extensor muscles. Adjust the amplitude to produce visible rhythmic muscular contractions. Stimulate for 20 minutes.
-



The high skin resistance pattern associated with an inflamed Saddle Joint

The following treatment forms have also been effective.

Variation:

- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.8 W/cm^2 . Ultrasound the distracted saddle joint distracted, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes. This procedure is designed to soften the adhesions that may be present.
- Manipulate the tissues in and around the inflamed zone to eliminate any adhesions that may be present.
- Twenty minutes after the first ultrasound, preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.5 W/cm^2 . Ultrasound the distracted saddle joint utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes. This is performed to “cool off” the manipulated zone by effectively halting the production of prostaglandins by the stressed tissues.

Variation:

- Preset the ultrasound unit to deliver a 1 MHz pulsed waveform, at 1.8 W/cm^2 . Ultrasound the distracted saddle joint, utilizing an effective non-steroidal anti-inflammatory as a coupling agent, for six minutes. This procedure is designed to soften the adhesions that may be present.
- Manipulate the tissues in and around the inflamed zone to eliminate any adhesions that may be present.
- Apply cold laser (with or without simultaneous electrical stimulation provided by the laser applicator) to the inflamed zone for approximately 6 minutes. This is performed to “cool off” the manipulated zone by

effectively halting the production of prostaglandins (or facilitating enzyme destruction of all inflammatory being produced) by the stressed tissues.

Usually, if the subluxation is not too great, only a few sessions may be required to alleviate the symptoms of inflammation.

Post Treatment Suggestions:

Hypertoning of the thenar muscle group is recommended, to help reduce the metacarpal head subluxation and to prevent future ligamentous stress. The patient should be instructed to grasp a piece of wood or other device (a rock climbers finger muscle toner, for instance), measuring at least nine cm long, six-cm wide and two-cm thick, in the palm of the involved hand. The device should then be squeezed, with the pressure exerted between the finger flexors and the thenar muscle group. The thumb should be lined up between the second and third finger, but should not be used to squeeze with. The main pressure should be between the fingers and the portion of the palm distal to the thenar eminence. The squeeze should last for six seconds, followed by a six-second rest (the patient should be cautioned not to hold the breath during exertion). This exercise should be repeated 10 times, once or twice a day only.

If the exercise is not comfortable, it is either not being executed correctly or an extensor pollicis tendonitis has occurred; a DSR evaluation is warranted (refer to **Extensor Pollicis Tendonitis Syndrome**).

Trigger Points

The following is a list of trigger point formations which may, singly or in combination, refer pain into the saddle joint area: Scalenus, Scalenus (minimus), Infraspinatus, Serratus posterior superior, Subclavius, Subscapularis, Brachialis, Extensor carpi radialis brevis, Middle finger extensor, Flexor carpi radialis, Brachioradialis, Pronator teres, Flexor pollicis longus, Opponens pollicis, and Adductor pollicis.