

Clinical Pearls



EXERCISE FOR A PAINFUL THUMB CMC JOINT?

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At the recent Philadelphia Hand Symposium, several therapists inquired about appropriate exercises for painful thumb CMC joint osteoarthritis. Although each exercise program must be individualized, stretching the adductor pollicis muscle, isolating and strengthening the first dorsal interosseous muscle, and isometrically strengthening muscles that stabilize the CMC joint are core components. These exercises (described below) are directed toward a stable thumb pattern during use.

The [Colditz Tear Test](#) is a quick way to observe the patient's natural tendency toward a collapse pattern when the thumb is under load. Such observation establishes the target goal for desired stability. In addition to the exercises outlined below, thumb posture can be influenced by prolonged use of kinesiotape or an orthosis which allows active contraction of all thumb muscles.

A tight adductor pollicis muscle contributes to thumb CMC joint instability and stretching can improve the ability to maintain the CMC joint in a stable position. Stretching a tight adductor pollicis muscle is done manually by applying pressure to the web space of the thumb while pushing the thumb into abduction at the CMC joint; see Figure 1.



Figure 1. Manually stretching a tight adductor

Current research indicates that the strength of the first dorsal interosseous muscle (1st DI) impacts thumb CMC joint stability. (1, 2) Isolating the 1st DI is accomplished by abducting the index finger away from the other fingers while keeping the MP joint in neutral. Rubber band resistance transforms this

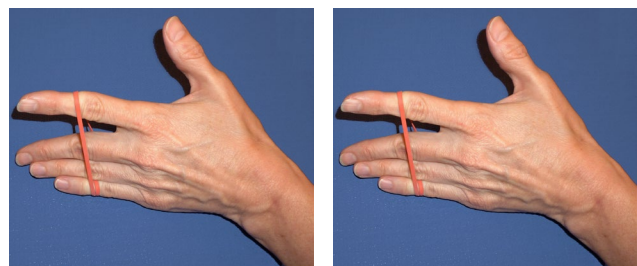


Figure 2.
Exercise to isolate the 1st dorsal interosseous muscle

exercise into either an active resistive or isometric resistive exercise; see Figure 2.

Isometric exercises to improve thumb CMC joint stability provide muscle strengthening without demanding painful joint motion. Ask the patient to make a “C” shape (Figure 3).

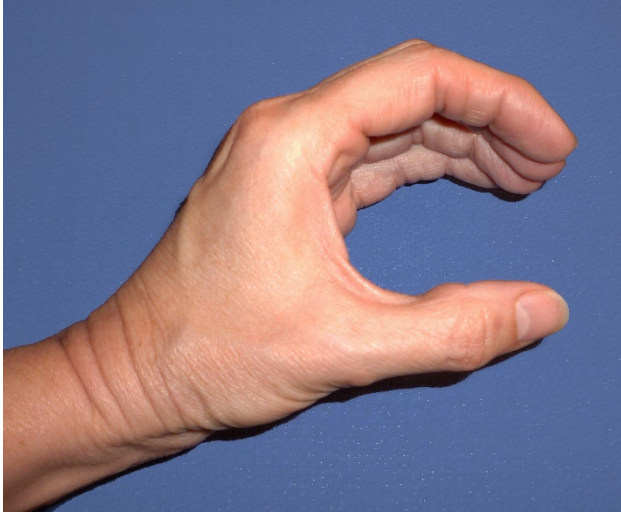


Figure 3. Isometric exercise to the CMC joint

As described in [HandLab Clinical Pearl No. 17](#), flexing the thumb IP and MP joints while extending /abducting the CMC joint, “assures that the extensor pollicis longus, the extensor pollicis brevis, and the abductor pollicis longus are all active, but their collective power is directed to the CMC joint.” These exercises should not exacerbate the pain and dosing must be to the patient’s tolerance. One of the best ways to go about the exercises described above is outlined by DeMott. (3)

1. Mobargha N, Esplugas M, Garcia-Elias M, Lluch A, Megerle K, Hagert E. The effect of individual isometric muscle loading on the alignment of the base of the thumb metacarpal: a cadaveric study. *J Hand Surg Eur Vol.* 2016 May;41(4):374-9.
2. McGee C, O'Brien V, Van Nortwick S, Adams J, Van Heest A. First dorsal interosseous muscle contraction results in radiographic reduction of healthy thumb carpometacarpal joint. *J Hand Ther.* 2015 Oct-Dec;28(4):375-80.
3. DeMott L. Novel isometric exercises for the dynamic stability programs for thumb carpal metacarpal joint instability. *Jour Hand Ther.* 2017 July–Sept;30(3):372–375.