

In the current age of electronics, information, communication, and gaming, technology can advance rapidly. People might spend many hours a day using their hands and thumbs specifically on computers, tablets, and phones. Though voice-activated technology is available, using our hands during technology use is still much more common and increasing.

Unfortunately, we do not consider what the repetitive activity of our hands during technology use does to our bodies, in particular our thumbs. Even before we can access the device to text, play a game, or look up information, we might have to use our thumbprint to securely open the device. This electronic use is in addition to how we use our thumbs daily for activities of living such as pinching, handwriting, buttoning our clothing, eating, working, and caring for others or ourselves.

Causes

In the case of pain with extension of the thumb, this is typically caused by inflammation and irritation of the thumb tendons that run under a tunnel-like band of tissue called the first extensor compartment retinaculum on the thumb side of the wrist. This tissue holds the thumb tendons close to the wrist or radius bone when you extend your thumb. Repeated rubbing of the tendons under the retinaculum can result in pain with movements of the thumb or wrist. This condition may be called deQuervain's tenosynovitis.

If there is catching, "popping," or locking located where the thumb joins the hand while the thumb is bent or extended, that could be a condition called trigger thumb. Pain is typically present on the palm side the thumb. Triggering with thumb flexion, such as with pushing a button on the phone, results from the flexor tendon becoming inflamed under the tunnel, called the first pulley, that the tendon passes through as it moves from the hand into the thumb. The pulley holds the tendon close to the bone.

In both deQuervain's tenosynovitis and trigger thumb, the tendons run through a synovial sheath that serves as a lubricant that helps the tendon glide during motion. The tendon has a thin lining called tenosynovium. This lining may thicken in these conditions, making the tendon thicker. The sheath has a confined area and does not change in size. When the tendon or tendon lining traveling through the sheath becomes enlarged, the tendons get caught in the tunnels (retinaculum or pulley), which causes pain, triggering, or even locking.

Weakness, cramping, or muscle ache occurs from thumb muscle fatigue. The muscle can even spasm and shake. If the blood flow to the muscle is limited from the position you are holding the device, then the area will cramp initially and then ache for a few days as it recovers. Carpal tunnel syndrome or cubital tunnel syndrome numbness in the thumb or pinky may also be the cause of numbness in your thumb from how you are holding your wrist or your elbows while using the device.



Symptoms

Signs and symptoms of overuse are:

- Thumb extension pain that is most felt on the side of the wrist
- Triggering or "popping" of the thumb with swelling and pain from repetitive thumb flexion or extension
- Cramping, weakness, or numbness of hands and thumbs

Diagnosis and Treatment

What can be done to help?

- Limit the amount of activity causing the irritation, and limit the use of electronic devices that require repetitive use of thumb in general
- Modify the position you hold your hands, thumbs, wrists, and elbows during the electronic activity, including rotating between hands if possible
- Press ice to area to decrease new inflammation initially but not long term (two to three times/day for 10-15 minutes is sufficient in most cases); after the first few days, warmth may improve muscle ache more than ice
- Immobilize the area with a brace or splint to allow resting of structures
- Consult with a hand therapist regarding education and exercises to prevent reoccurrence
- If continued problems, consult a hand surgeon for additional options, including a steroid injection
- In some instances when symptoms are prolonged or severe, a small surgery, which is typically very successful with a rapid recovery, can be performed to open the flexor or extensor sheath and relieve pressure on the tendon

In a society that continues to increasingly depend on electronics for work, life, and fun, it is vital that we learn ways to decrease the stresses on our hands and thumbs. If you are experiencing these symptoms from using technology, consult with your hand therapist or hand surgeon to discuss options to allow optimal pain-free electronic use for the long term.