

Elbow, Wrist and Hand Pain

Elbow

The elbow is commonly affected by trauma, which can be a sudden event such as a sports injury, or an accumulated injury such as can occur with performing a particular motion over and over. The elbow tends to become swollen and hurts with certain movements. The location of the pain, and type of movement that causes the pain is the key to helping the physician make a proper diagnosis. Elbow pain can be caused by fractures or dislocations of the elbow, muscular or ligamentous problems, various types of arthritis, occlusion of blood vessels, infection, or can be caused in other location but felt in the elbow, such as during heart attacks, or from neck, shoulder or hand injuries.

The diagnosis of elbow, wrist and hand problems is can be exceedingly easy or frustratingly difficult. A good history of injury, coupled with a thorough examination will point the Doctor in the right direction, and for some problems a nerve conduction test, x-ray or MRI may be needed to seal the diagnosis.

Pain over the outside of the elbow

Tennis Elbow (Lateral Epicondylitis)

This is characterized by pain to touch over the outside of the elbow bone (condyle). It is not just caused by playing tennis, it can be seen in anyone who does extensive writing, typing, hammering, brick laying or other activities. The cause is felt to be small tears in the muscle tissue connections at the outside of the elbow. To test for this condition, there are two physical maneuvers the Doctor will perform - Cozen's test and Mill's test. Put your hands together like your are praying. Now push the good hand against the bad one to bend the wrist back. Rest. Now push the back of your hand against the monitor, fingers pointing down toward the keyboard. Try to push your arm toward the monitor- this will bend your wrist the opposite direction as the 'prayer test' done first. If either of these moves cause pain, they may indicate a problem. At first, rest and stopping the activity that precipitated the pain helps. Heat, ice and massage

may also help. For more severe cases the proper local injection of cortisone can help, as well as anti-inflammatory medications, electrical stimulation, splints, surgery, and a band placed 2-3 inches below the elbow. If this doesn't help the Doctor should consider the presence of a condition known as *posterior interosseous syndrome*.

Posterior Interosseous Syndrome and Radial Tunnel Syndrome (Resistant Tennis Elbow) are conditions where nerves in the arm become entrapped, causing weakness in certain muscles. In posterior interosseous syndrome, a branch of the radial nerve is pinched, causing weakness in lifting the thumb and fingers. The patient would have difficulty making the 'thumbs up' sign. It can be caused by arm fractures, elbow dislocation or tumors. Radial Tunnel Syndrome like tennis elbow, causes pain in the outside of the elbow but usually more into the muscle than right on the bone itself when touching the area. Pain is typically worse at night, and can be caused by the same things that cause tennis elbow. It can be separated from tennis elbow by several tests as well. Shake hands with yourself, and try to turn the palm of the 'bad' arm up. Relax. Now this sounds a bit obscene, but put your hand on the mouse, and keep the other fingers on the mouse while you lift off the middle finger as high as you can. If these moves cause an increase in your pain, you should see a Doctor.

Pain over the inside of the Elbow

Golfers Elbow (Medial Epicondylitis) This is usually pain near the inside bone of the elbow. In golfers elbow test, slip your palm under the ledge of the desk in front of you, with your thumb hooked over the top. Start with your elbow bent, and try to push yourself away from the desk. Pain in the inside of the elbow may mean you have a problem. Treatment is the same as with tennis elbow.

Ulnar nerve injury

Often pain on the inside of the elbow can be associated with a problem with the ulnar nerve. The ulnar nerve works the small muscles of the thumb and hand, and gives feeling to the small and ring fingers. Thus if the ulnar nerve is injured, it becomes hard to pinch the thumb with the other fingers, spread the fingers apart, and you find that the grip of a pencil or golf club is weak. The pinky finger

may stick up and get caught on your pants when you put your hand in your pocket. The pinky and ring finger are numb.

The ulnar nerve can become damaged from pressing on it, such as during anesthesia or from pinching the nerve as it passes through a passageway just outside the elbow known as the **cubital tunnel**. If you have some of these symptoms, a good Doctor will also try to rule out other conditions that have similar symptoms, such as a pinched nerve higher up in the arm (brachial plexus injury, lung cancer) or neck (cervical radiculopathy), or very rarely, Lou Gehrig's Disease.

Median Nerve Injury

The median nerve can become pinched in any of three locations around the elbow. A rare location to become entrapped is at a small knob (**supracondylar process**) that grows out of the arm bone only in about 3 out of a hundred people.

More common is entrapment from a part of the biceps muscle tendon below another muscle known as the **pronator teres**. The result is tenderness and pain over the pronator muscle in the forearm, clumsiness, loss of dexterity and hand weakness. This is known as **pronator syndrome**.

Anterior Interosseous Syndrome occurs from trapping the median nerve about 3 inches below the elbow. With this problem there is forearm pain, and the inability to bend the thumb, thus the 'OK' sign looks more like a triangle than an 'O'.

Tendinitis/Bursitis

This is an inflammation of the fluid filled sacks inside a joint-called bursa, or the fibrous strands of tissue surrounding the joint-tendons-that attach to muscles. In medicine any word that ends in "itis" means inflammation of. Therefore 'tendon-itis' is an inflammation of a tendon. Pain from inflammation of these structures tends to be gradual, and is brought on repeated minor trauma or activity. This type of pain usually responds well to local injections of corticosteroids such as cortisone.

Wrist/Hand Pain

The wrist is a complex union of three joints with 8 small bones layered in rows between the bones of the hand and forearm. As in the elbow, pain comes primarily from fractures, inflammation, or nerve entrapment.

Tenosynovitis

There are many Tendons that pass through the wrist. These tendons can be thought of as pulleys that help move the hand. The body keeps the tendons lubricated as they move by wrapping them with a thin slippery layer called a *synovial sheath*. Repetitive activities, particularly those involving trauma to the tendons itself can cause damage to the sheath. The sheath swells, and the slippery lubrication of the tendons is harmed. This causes pain to touch the tendon itself. If untreated, the slippery wrapping scars, causing what is known as *stenosing tenosynovitis*.

De Quervain's Disease is a form of stenosing tenosynovitis involving the tendon of the thumb. The thumb hurts with moving. The Doctor will perform what is known as Finkelstein's test. Make a fist with the thumb tucked inside the hand and the palm down. Then twist the wrist away from the body. See the diagram. This stretches the tendon along the thumb and causes pain. An injection of cortisone along the inflamed tendon can be very helpful.

Cumulative Trauma Syndrome

Also known as **Overuse Syndrome**, these are descriptive terms for injury from overuse of an area of the body. This overuse is usually related to a job activity, especially those who work with vibratory tools. The muscles, tendons, joints and bursa can be damaged. The exact mechanism of how damage occurs is still debated, with data showing microdamage to tissues, reduction in blood flow reducing nutrients to muscles, biochemical changes in the muscle itself, as well as inflammation and deformation. Issues such as job satisfaction, stress, and financial incentives are also considered. General treatment consists of stopping the activity precipitating the pain, such as changing the setup of a computer workstation (see ergonomics page), anti-inflammatory medications, physical therapy, rest, splinting, and addressing social issues.

Carpal tunnel syndrome is the most common type of nerve entrapment . It is a common problem found in people who repetitively bend the wrist, such as computer keyboard users, knitting, and cyclists. The median nerve gets trapped in a tough fiber tunnel in the wrist called the flexor retinaculum. The flexor retinaculum is the wrapping around a wiring bundle that is stuffed with 9 tendons and the median nerve. It is more common in women by a 3:1 ratio, and usually shows up in middle age. It starts off as intermittent, and gradually progresses. It is felt as a pricking numbness, worse at night and improved with moving or shaking the hands, or putting the hand in warm water. Most people don't have hand weakness, but may note dropping things. Pain and numbness can even go up the arm, sometimes fooling doctors. Thus the doctor must differentiate between this and a pinched nerve in the elbow, shoulder or neck. Rarely both can occur, and this is known as **double crush syndrome**. The doctor can do some simple tests to help check for the problem, including bringing on the usual pain by bending the wrist for 30-60 seconds (Phalen's sign) and tapping over the wrist (Tinel's sign). If left untreated, prognosis is poor once numbness develops. Treatment consists of stopping the activity causing the pain, wearing a splint, anti-inflammatory medications, and for mild pain, local steroid injections. No more than two injections should be done, and the injections provide good relief for weeks to months in 50% of patients. Failing these options, surgery is performed.

Guyon's Canal- The other wrist entrapment

While carpal tunnel syndrome gets all the press, a significant problem in the wrist is from entrapment of the ulnar nerve as it passes through a tunnel of bones and ligaments, known as Guyon's canal. It can be caused by hitting things with, or putting pressure on, the palm of the hand- such as when putting on a hubcap, a karate chop, using a screwdriver, or bicycling long distances. Even patients on coumadin have been known to bleed into the canal causing nerve compression. While wrist pain results, there may be weakness in spreading the fingers and numbness of the back of the hand.

Hand pain only

Chronic hand pain is usually related to arthritis, nerve entrapment, tendonitis, or general nerve disorders such as in diabetes.

For more information go to <http://www.newportpain.com> or call Newport Pain Management, Dr. H Rand Scott for an appointment at 949 759-8400.