

Cubital Tunnel Syndrome (Ulnar Nerve Entrapment)

Cubital Tunnel Syndrome (**CuTS**) occurs when the ulnar nerve becomes compressed at the elbow. The nerve passes through a tunnel (the cubital tunnel) behind the inside of the elbow (at the “funny bone”). The ulnar nerve can be felt through the skin in this area. The ulnar nerve provides sensation to the small finger and half of the ring finger. It controls most of the muscles in the hand that help with fine movements. Occasionally the nerve can also be compressed at the wrist, next to the carpal tunnel in an area known as Guyon’s Canal.

Symptoms

- Numbness and tingling in the ring and little finger (may worsen when the elbow is bent, such as when driving or talking on the phone)
- Weakness and difficulty with finger coordination (such as when typing or playing an instrument)

Causes

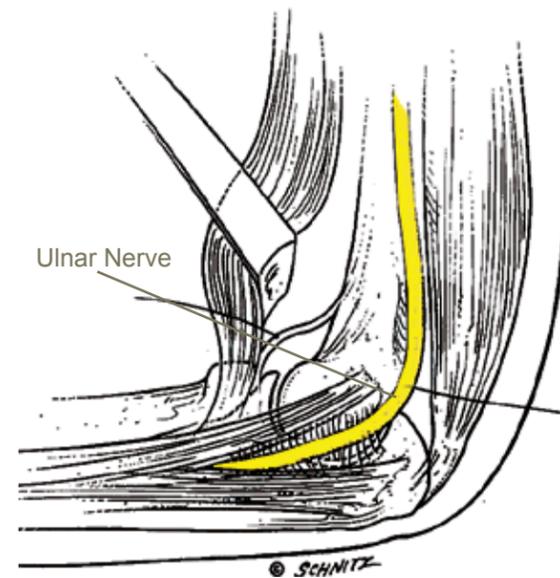
Cubital Tunnel Syndrome may occur spontaneously. It can also occur following extended periods of elbow flexion (sleeping with your elbow bent), trauma or direct pressure such as leaning the elbow on a hard surface.

Diagnosis and Treatment

A history and physical examination is performed. Tapping over the nerve at the “funny bone” can cause a shock into the little and ring fingers. A nerve conduction study/ electromyogram (NCS/EMG) is done to confirm the diagnosis and grade the CuTS as mild, moderate or severe. In mild cases non-surgical treatment may be indicated and could include: avoiding activities requiring the elbow to bend, refraining from leaning on the elbow

or putting pressure on the inside of the arm, and maintaining the elbow in a straight position while sleeping (using a special splint called a heelbo).

In more severe cases, where symptoms persist or there is muscle weakness, surgery is recommended to relieve pressure on the nerve. Dr. Rosen was among the first hand specialists in Houston to offer Endoscopic Cubital Tunnel Release. Sometimes a more extensive procedure may be indicated to move the nerve to the front of the elbow or bury it beneath a muscle. Depending on the type of surgery, hand therapy may be recommended after the procedure.^{KSF}



Carpal Tunnel Syndrome

Carpal Tunnel Syndrome (**CTS**) is one of the most common problems seen by hand surgeons. The carpal tunnel lies between the forearm and the hand. CTS occurs when increased pressure in the tunnel compresses the median nerve eventually affecting the function of the nerve. The median nerve supplies sensation to the thumb, index, middle fingers, and half of the ring finger. It is also responsible for function of the small (intrinsic) muscles of the hand which are responsible for fine motor function.

Symptoms

- Numbness and tingling in the hand, often worse at night or with activity
- Aching pain that may radiate up the forearm towards the shoulder and neck
- A feeling of “poor circulation” in the hands
- Clumsiness or weakness when handling objects or trying to pick them up. Patients may drop objects

Causes

Causes of CTS include any condition that causes swelling around the tendons or decreases the space in the carpal tunnel. These include:

- Repetitive use of the upper extremity
- Regular use of vibrating tools
- Fractures (broken bones in the hand or wrist)
- Arthritis, thyroid disease, diabetes, pregnancy

Diagnosis and Treatment

A diagnosis of CTS may be confirmed following a history, physical examination, an x-ray and a nerve conduction study (NCS)/ electromyogram (EMG), which tests nerve and muscle function. The test helps to grade the severity of the syndrome as mild, moderate, or severe, helping to determine the best treatment.

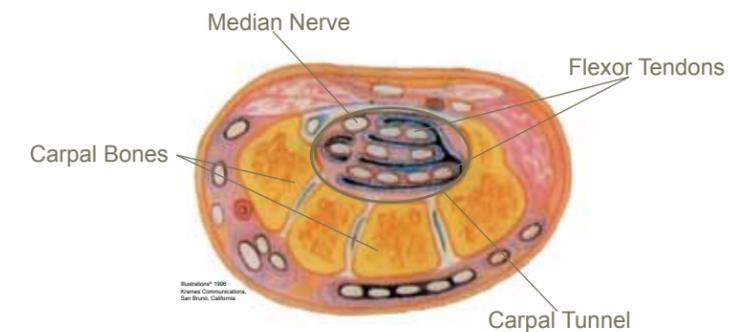
Non-surgical treatment

- A wrist splint
- Non-steroidal anti-inflammatory medications to decrease swelling
- A cortisone injection into the carpal tunnel to decrease swelling

Surgical treatment

If symptoms persist, a Carpal Tunnel Release may be recommended in order to reduce the pressure on the median nerve and prevent irreversible damage. Dr. Rosen offers patients the option of an endoscopic Carpal Tunnel Release or a Mini Open Carpal Tunnel Release. Both surgeries are performed as an outpatient.

Following surgery, CTS recurs about 10% of the time and repeat procedures may be necessary.^{KSF}



Cross section of the wrist

Tennis Elbow & Golfer’s Elbow

Most patients with this condition do not play tennis or golf.

Tennis Elbow (**lateral epicondylitis**) is a painful condition around the bony prominence (epicondyle) along the outside (lateral aspect) of the elbow. Golfer’s Elbow (medial epicondylitis) is a similar condition, around the inside (medial aspect) of the elbow. Tennis and golfer’s elbow typically result from repetitive motion and most often occur as a result of everyday activities rather than golf or tennis. Both conditions involve degeneration or inflammation of the tendons that originate around the elbow joint and move the wrist.

Symptoms

- Pain and discomfort with motion and sometimes also at rest
- Pain radiating from the elbow down the forearm with activity
- Weakness of the affected arm

Causes

- Overuse of the muscles in the forearms causing tiny tears and inflammation in the tendons that attach the muscles to the epicondyles
- Repetitive activity involving the elbow joint (painting, raking, pitching, rowing, hammering, etc.)
- Lifting heavy objects
- Trauma such as a direct blow to the elbow

Diagnosis and Treatment

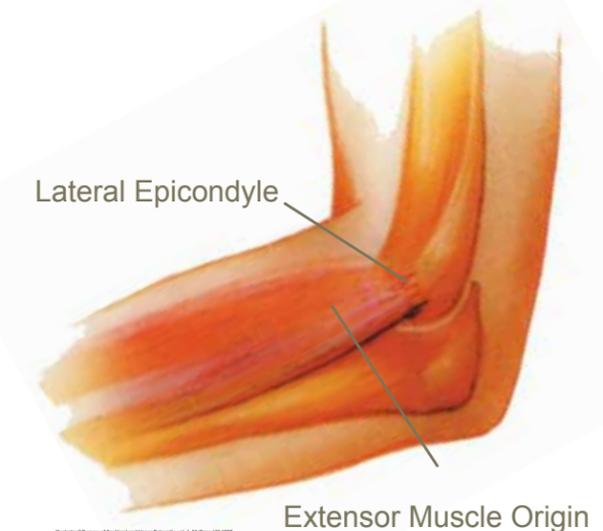
Diagnosis is made by taking a history and performing a thorough examination. X-rays are taken to evaluate the bones. Sometimes Dr. Rosen will order an MRI to determine the severity of the epicondylitis to decide the best treatment.

Non-operative treatment includes

- Rest to allow the micro-tears to heal
- Ice to decrease pain and inflammation
- Anti-inflammatory medication
- Steroid injection to help relieve/ decrease inflammation and pain
- Counterforce brace/elbow cuff during the day
- Wrist splint at night
- Physical therapy to decrease pain and inflammation while increasing strength and endurance
- Platelet-Rich Plasma (PRP) injections for the treatment of chronic medial and lateral epicondylitis.

Operative treatment

Dr. Rosen is among the first hand specialists in Houston to offer the FAST®/Tenex® procedure which uses ultrasound to localize and remove the abnormal tissue. In severe cases, traditional surgery to excise the abnormal tissue and repair the muscle is recommended. For both of these procedures post-operative therapy is necessary.^{KSF}



Radial Head Fracture

Radial Head Fractures are common injuries, occurring more frequently in women and most often between 30 and 40 years of age. A fracture is a break or crack in the bone. The radial head is the part of the radius bone lying on the outside of the elbow.

Symptoms

- Pain and swelling along the outside of the elbow and in the elbow joint
- Deformity at the elbow
- Difficulty bending or straightening the elbow
- Inability/difficulty in turning the forearm (palm up to palm down)

Causes

Radial head fractures occur most frequently when an outstretched hand is used to break a fall. The force of the fall may travel up the forearm and injure the elbow. Radial head fractures also occur in conjunction with elbow dislocations. Approximately 10% of all elbow dislocations involve a fracture of the radial head.



Before (Pre-Operative) After (Post-Operative)

Diagnosis

The diagnosis is made by doing a history, examination, and an x-ray of the elbow. The x-ray helps to evaluate the fracture and direct the most appropriate treatment. A CT scan may also be indicated to better visualize the fracture fragments.

Treatment

Treatment for radial head fractures is based on the severity of the fracture. Some are treated with splinting alone, while others may require surgical repair. Non-surgical treatment involves a splint for 3 weeks followed by early motion. Movement attempted too quickly

may cause the bones to shift and become displaced requiring surgery. Surgical repair involves either stabilization with pins or screws or, in more severe cases, replacement of broken bone with a prosthesis. On occasion the radial head may be excised without placement of a prosthesis.

Even the simplest radial head fracture can result in loss of elbow range of motion. Therapy is often indicated to restore range of motion and achieve optimal elbow function.^{KSF}

Olecranon Bursitis

Olecranon Bursitis is inflammation of the bursa that lies over the olecranon bone, at the back of the elbow. A bursa is a sac of fluid located over a weight bearing area that provides a cushion and reduces friction during movement. Bursitis is inflammation of the bursa. Olecranon Bursitis may occur due to infection or due to inflammation that occurs in an arthritic joint.

Symptoms

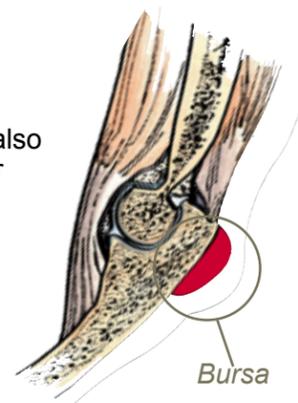
- Pain - especially with pressure and sometimes with movement
- Swelling - a fluctuant mass is felt at the back of the affected elbow. The swelling or lump is caused by increased fluid within the bursa
- Redness, streaking, warmth, fever, and swollen lymph nodes in the arm (indicative of an infection)

Causes

- Inflammatory conditions such as rheumatoid arthritis
- Friction or pressure over the back of the elbow
- Trauma to the elbow, causing bleeding or fluid build-up
- Infection resulting from an injury at the site of the bursa, or a local infection spreading to the bursa, or a blood-borne infection

Diagnosis and Treatment

Olecranon Bursitis is diagnosed on physical examination. X-rays may also be necessary to determine whether there is a spur at the tip of the olecranon or if a fracture is present. If there is a concern about an infection in the elbow, it may be necessary to drain fluid with a needle and have the fluid tested by a laboratory.



Treatment for Acute (sudden onset) Bursitis

may include:

- A padded dressing
- Splinting and anti-inflammatory medication
- Drainage of excess fluid with a needle
- Injection of medication such as cortisone to decrease inflammation and swelling
- With severe infections surgery is indicated.

Treatment for Chronic (persistent, longstanding) Bursitis

treatment may include:

- Behavior modification (avoid leaning on the elbows)
- Protecting the elbows during sports with elbow pads
- Anti-inflammatory medications
- Antibiotic medications (if an infection is present)
- Surgery to drain or remove the bursa^{KSF}