

# Hand & Wrist Injuries

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While we can appreciate the importance of all our individual body parts, an injury to the hand or wrist can significantly impact our function. The hand and wrist are the tools we use to manipulate our world. Anatomically speaking, the phalanges (fingers) are connected to the carpal bones (long bones in the hand), which are connected to the metacarpal bones (small bones that form the wrist), which connect to the radius and ulna (bones of the forearm). The elbow joint is then formed by the junction of the radius and ulna to the humerus (the upper arm bone). Sprains and overuse syndromes can occur at any of the joints or junctions of these bones.

One of the most common and publicized injuries in the work force is carpal tunnel syndrome (CTS). The joint affected by CTS is the wrist where the carpals connect to the forearm. The carpal tunnel is found on the palm side of the wrist. Many important structures travel through this tunnel. Nerves, all the flexor tendons and arteries, and veins travel to the fingers in the tunnel that is formed by the hand carpal bones on the top and supporting ligaments underneath. Any swelling or compression here directly effects the arteries, nerves, and tendons and can result in numbness, tingling, pain, sensation changes, and weakness. Early signs are numbness, tingling, and pain and can be treated with modalities (ultrasound, heat, ice) to reduce the swelling and inflammation. At this stage of the injury, work site or job modification, coupled with modality use, strengthening, and possibly splinting can relieve the condition and the person can return to activities without difficulty. Once muscle weakness and muscle wasting occurs as well as significant pain, surgery is usually indicated to correct the condition.

Another fairly common condition seen in the hand is trigger finger and Dupuytjen's contracture. Trigger finger occurs when you bend a finger and you cannot straighten it again without using your other hand. Dupuytjen's contracture is the gradual bending of a finger that cannot then be straightened. There is a nodule or thickening of the connective tissue of the hand that draws the finger down into the palm. While physical therapy may be ordered for both these conditions, surgical intervention is necessary to correct the condition.

Minnesota winters are famous for causing the next condition: Colles' fracture. This is a fracture of the distal radius or ulna and usually occurs while catching yourself from a fall and landing on the outstretched hand. Depending on the severity of the fracture, surgery or casting may be initially indicated. Once healed physical therapy will probably be ordered to restore range of motion and strength of the wrist. It is necessary to regain motion and strength in order to have a complete return of function.

Moving up the arm we find the next injury at the elbow, epicondylitis. Tennis elbow or golfer's elbow are common names for epicondylitis, or inflammation of the extensor tendons (tennis elbow) or flexor tendons (golfer's elbow) at the point where they attach to the bone. This is typically caused by overuse or repetitive work and is characterized by pain, tenderness, and swelling at the elbow. Left untreated, there will be weakness, continued pain and loss of function. Physical therapy modality treatments are very effective at decreasing the swelling and pain. In addition to decreasing the signs and symptoms, physical therapy will modify the activities and recommend ways to prevent reoccurrence as well as regain the strength and function.

Hand, wrist and elbow injuries are potentially disastrous for functional interaction and manipulation of our world. While there are many treatment options available today, it is very important to pursue medical advice with the earliest symptoms.