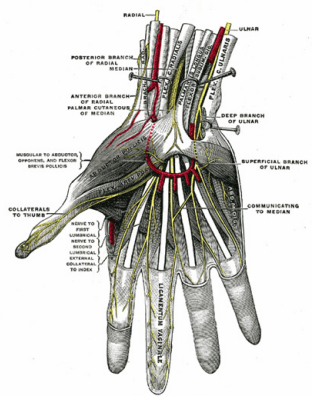


# Golden Hills

Orthopedic and Sports Physical Therapy

# j o u r n a l

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## Preventing and Treating Injuries to the Hand and Wrist

Hands are our chief organs for physically manipulating our environment, allowing us to employ the roughest to the finest motor skills in our approach to a given activity. And since the fingertips contain some of the densest areas of nerve endings in the human body they are also our richest source of tactile feedback from our environment. In fact, a vast range of human activities—from opening a can of soda, to hammering a nail, to performing surgery—would be impossible without the healthy functioning of the wrist and hand. But this area’s anatomical intricacy and delicacy also make it one of the most vulnerable to injury in the human body.

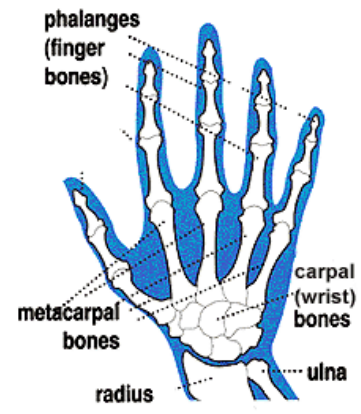
Golden Hills, this 2-issue series (January and February) will cover the following topics:

- Anatomy of the hand and wrist
- Common injury conditions
- Physical therapy treatments
- Preventive exercises for patients to do at home

Our end goals are to help you respond to injuries with appropriate evaluation and treatment, and to encourage you to rely on Golden Hills as a partner in helping your patients achieve their recovery goals.

### Anatomy of the Hand and Wrist

As an anatomical system, the wrist and hand are far more complex than the elbow, which we discussed in the October and November issues of *Golden Hills News*.



At Golden Hills Orthopedic and Sports Physical Therapy, we have an excellent track record of helping patients who have sustained an injury to the hand and/or wrist recover their strength, flexibility and range of motion through sound physical therapy practices, including a combination of manual techniques such as exercise, myofascial release and scar tissue mobilization, neuro muscular and joint mobilization, and training to help the patient use his or her hand for maximal function. We begin by evaluating the shoulder girdle, arm, wrist and hand as one unit.

Based on the extensive experience of Saad Shaban, PT, founder and owner of

### Patient Tips

#### Preventing In-Line Skating Injuries

Some of the most common hand and wrist injuries physical therapists see—and not just in children and teens—are the result of in-line skating accidents.

Simple protective equipment can mean the difference between many hours in a physical therapist's office and many hours zipping around town.

To help prevent a potentially serious injury, always wear wrist protectors, elbow pads, knee pads and a helmet.

# Preventing and Treating Injuries to the Hand (Continued)

The eight wrist bones are known as carpals, and they support the carpal tunnel, a “tube” that runs through the wrist. The carpal tunnel contains tendons and the median nerve, and it is covered by the transverse carpal ligament.

The hand itself is even more intricate. The metacarpals form the structure for the “body” of the hand, and the phalanges are the finger bones. There are three phalanges in each finger, except for the thumb, which has two.

Each finger is supplied with two types of tendons: an extensor tendon on top, which straightens the finger, and a flexor tendon on bottom, which bends it.

The interphalangeal (IP) joints are the joints between the different sections of the finger. Metacarpal phalangeal (MP) joints connect the fingers and the hand.

In all, there are 27 bones in the hand, including the wrist. In addition, the hand contains an intricate network of muscles, tendons, nerves and blood vessels, all packed into a very tight space.

## Common Injury Conditions

### Acute (Traumatic) Injuries vs. Overuse (Repetitive Motion) Injuries

Physical therapists deal with two main groups of hand and wrist injuries—acute injuries and overuse injuries.

An acute injury may be caused by a direct blow, injury or fall, or by twisting, jerking, jamming or bending a joint or tendon abnormally. Pain may be sudden and severe. Bruising and swelling may develop soon after the injury. Traumatic injuries, which include fractures, lacerations, amputations, etc., always require immediate medical intervention by a physician, often followed by a physical therapy rehabilitation program that commences once the patient’s condition has stabilized.

Common acute injuries include:

- Colles’ fracture
- Scaphoid fracture
- Hamate Fracture
- Metacarpal fracture

- Metacarpophalangeal joint dislocation
- Wrist sprain
- DIP joint injury

Overuse, or repetitive motion, injuries develop over time and are often the result of athletic activities, computer work, assembly line tasks or other tasks that require the repetitive use of the arms and hands. Physical therapists treat repetitive motion injuries by developing plans of treatment that address muscle and joint stress and weakness.

Common overuse injuries include:

- Carpal tunnel syndrome
- Cubital tunnel syndrome
- “Trigger finger”
- DeQuervain’s disease
- Tendonitis of the wrist

In next month’s issue, we will delve into more detail about each hand and wrist injury condition and provide insights into Golden Hills’ approach to improving patient recovery through physical therapy.

## Preventive Hand and Wrist Exercises

### Flexibility



Make a straight palm, then a hooked fist, then a straight fist, then a full fist

### Wrist Flexion

Top – while holding hand straight, bend wrist down as shown

Bottom – Lay hand on a flat surface and extend upward

