

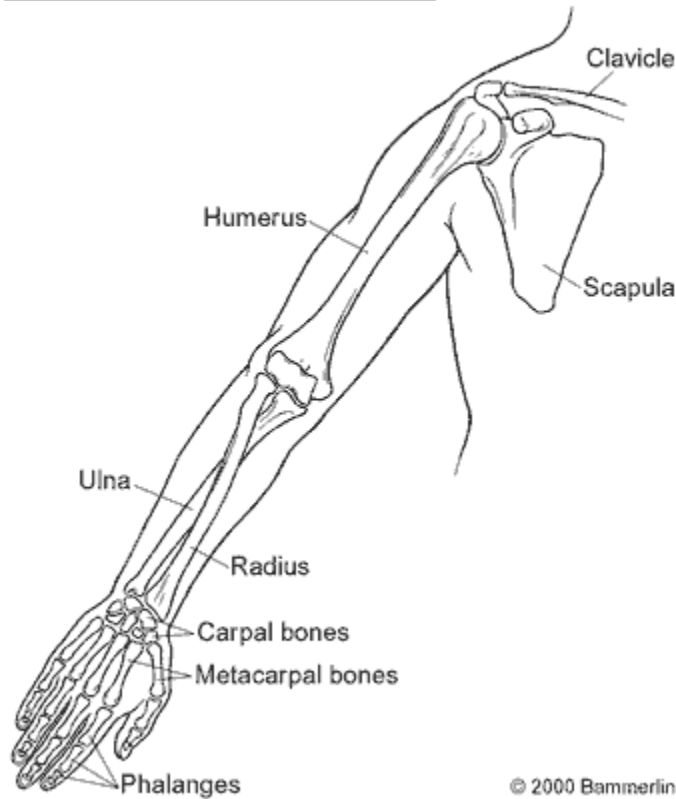
Is Wrist Pain Interfering with your Yoga Practice?

Wrist Pain –Causes & Solutions

~Paula Wilbert OTR/L

Anatomy: The Arm Bones

Fig. 2: Bones of the upper limb.



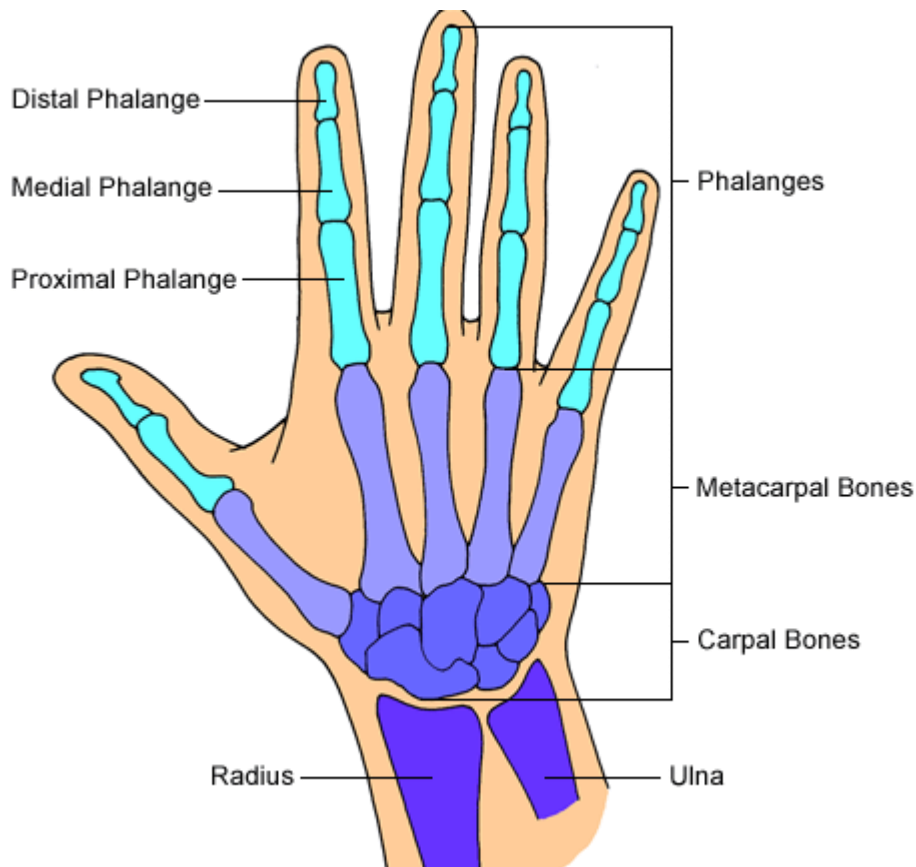
The Humerus: or upper arm bone connects to the shoulder at the top and the elbow joint at the bottom or distal end.

The Radius & Ulna: form the forearm and connect from the elbow to the wrist joint. The radius rotates around the ulna bone to enable the hand to move from the palm up (supination) to palm down (pronation) position.



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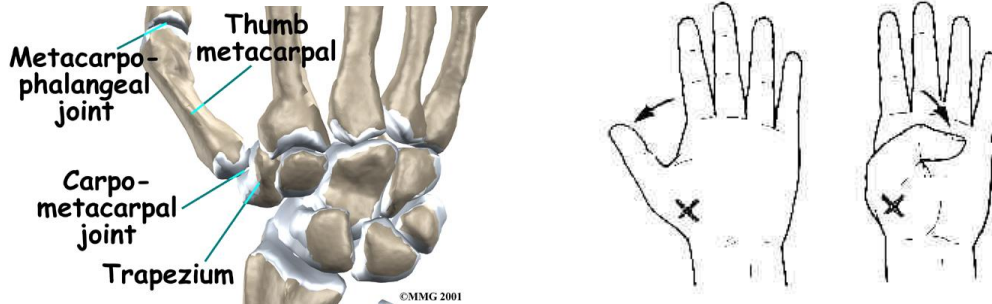
The Hand has 27 Small Bones



The Wrist is a complex joint made up of eight small bones arranged in two rows between the bones in your forearm and the bones in your hand.

The Hand Five bones of the palm, called the Metacarpal bones, connect to the Carpal bones of the wrist. Each of the four fingers is made up 3 Phalange bones that connect and form the 3 knuckles or finger joints. These joints articulate to extend, flex, spread and rotate the fingers.

The Thumb is highly mobile loose capsule joint. It has only 2 Phalange bones. The thumb metacarpal bone connects to the wrist at the carpal bone Trapezium. This joint is known as the CMC joint or Basal Thumb joint (X below)

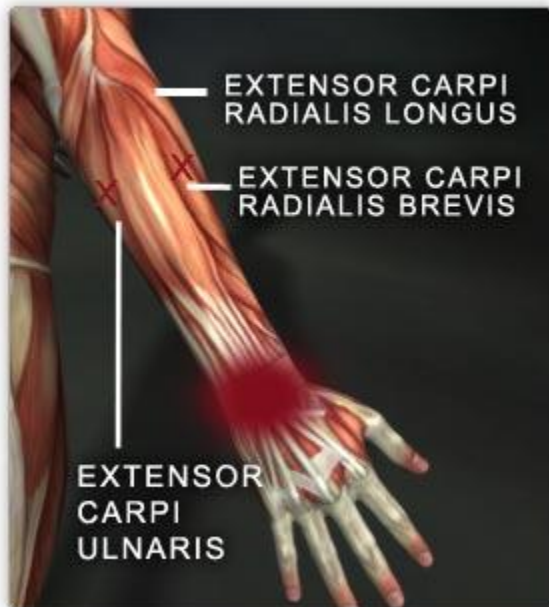


Soft Tissues:

Tendons connect muscles to bones and move our bones when we contract & relax our muscles. Your bones are supported by a combination of muscles, tendons and ligaments

Ligaments are strong bands of connective tissue that connect one bone to another to support the joints and keep the bones in place.

Muscles: Many of the primary muscles that power the wrist, hand and fingers originate in the forearm



Extensor Muscles (back of hand)



Flexor Muscles (palm of hand)

Muscles (cont):

The flexor muscle group flexes the fingers to close the hand and bends the wrist down. The muscles are located on the forearm and tendons pass through the carpal tunnel on the palm side of the wrist.

The extensor muscle group extends the fingers to open the hand and bend the wrist back towards the top of forearm. These muscles are located on the forearm and the tendons are on the back side of the hand.

Intrinsic hand muscles are located within the hand and assist with moving & spreading the fingers, and grasp strength

Nerves The 2 nerve that innervate the hand are the median and ulnar nerve.

Blood Supply is provided by the ulnar and radial arteries.

Fascia, a fibrous connective tissue knits it all together to hold every thing in place. Fascia is strong connective tissue which performs a number of functions, including enveloping and isolating the muscles of the body and providing structural support and protection. Fascia is thin, but very fibrous and strong

Anatomically the hand is designed for mobility verses stability.

Common Causes of Wrist Pain:

1. **Overuse:** Too much repetitive movement or joint impact
2. **Injury:** A sudden fall, wrist fractures, strains & sprains
3. **Aging or Disease:** arthritic changes in the joints, inflammation, diabetes etc.
4. **Posture / Conditioning:** weak muscles, poor range of motion, poor alignment / form

1. Overuse or Repetitive Strain Injury (RSI):

RSI-- Repetitive Strain (or Stress) Injury occurs when repetitive movements are combined with physical stress such as impact or tension.

- a) Carpal Tunnel Syndrome (CTS)
- b) Tendonitis
- c) deQuervains Syndrome

d) Other RSIs: Thoracic Outlet Syndrome, 'Tennis Elbow', 'Golfers Elbow', chronic neck, forearm or shoulder pain.

a) Carpal Tunnel Syndrome (CTS): The carpal tunnel is a narrow passageway surrounded by bones and ligaments and located on the palm side of your wrist. Through this tunnel passes a main nerve to your hand, the median nerve and nine tendons that flex your fingers. When the tunnel narrows or pressure placed on the tunnel and nerve it can cause numbness, pain and, eventually, hand weakness.

Symptoms:

-Tingling or numbness in your thumb, index & middle fingers, sometimes the ring finger, but not your little finger. As CTS progresses numbness goes from intermittent to constant.

-Radiating pain up from your wrist to your forearm & shoulder or from wrist down to your finger tips on the palm side of your hand.

-Weakness in the hands may occur as CTS worsens.

Causes: The cause of carpal tunnel syndrome is pressure on the median nerve due to reduced space in the carpal tunnel. This may be due to:

-Injury to the wrist that causes swelling

-Conditions that cause inflammation or fluid retention

-Repetitive or Forceful use with constant flexing and extending of the tendons

-Physical anatomy such as naturally narrow tunnel

Risk Factors:

-Hand Intensive Occupations or Hobbies

-Your Sex: Females 3 X greater than males

-Your Health: RA, diabetes, thyroid problems, pregnancy, menopause

-Heredity

Non Surgical Treatments:

-Alter Activity (Will be discussed in greater detail later)

-Avoid Asanas that combine weight bearing with wrist at 90 degrees

-Cold Packs to Reduce Swelling

-Muscle / Body Work to reduce tension -look beyond the wrist

-Awareness of Posture / Breathing / Holding Patterns

- Reduce Stress
- Yoga & Specific Stretches
 - refer to video in meditation and movement area
 - get pictorial download “Computer Users Stretching Program” @ getwags.com
- Relaxation Techniques
- Wrist Splinting
- Anti-inflammatory medications
- Corticosteroid injection
- Other: acupuncture, chiropractic, B-6 vitamins

Prevention:

- Reduce force and relax grip
- Use finger tips not pads for keyboarding
- Manage Stress
- Frequent Stretch Breaks (drink plenty of water & stretch after each bathroom break)
- Ergonomics –Be Aware of Form & Alignment
- Improve Posture
- Keep Hands Warm

b) Tendonitis is inflammation of a tendon or the tendon sheath. Inflammation is a healing response to injury. Tendonitis is caused by a series of small stresses that repeatedly aggravate the tendon. Professional Athletes and musicians are susceptible due to rigorous practice and performance schedules.

Symptoms:

- Pain, Heat, Swelling & Redness

Causes:

- Repetitive movements combined with stress...yes, too many sun salutations can cause tendonitis!
- injury to the muscle or tendon then resuming activity before fully healed

Treatment:

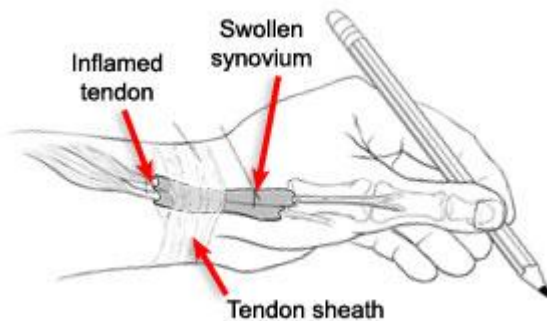
- Rest to allow healing ~3+ weeks (avoid weight bearing asanas)

- Eliminate or Alter Activity
- Mild Compression Wraps
- Splints to Immobilize
- Exercise to correct muscle imbalance & improve flexibility
- Anti-inflammatory medication and steroid injections

Prevention:

- Lessen repetitive movement
- Alter schedule / mix it up
- Listen to your body and don't push through the pain

c) **De Quervains Syndrome / Thumb Pain:** De Quervain's tendinitis is caused when tendons on the thumb side of the wrist are swollen or irritated. The irritation causes the lining (synovium) around the tendon to swell, which makes it difficult for the tendons to glide as they should.



Symptoms:

- Pain over the thumb side of the wrist.
- The pain can travel up the forearm.
- Increased pain when the hand and thumb are in use, especially when grasping objects or twisting the wrist.
- Swelling may be seen over the thumb side of the wrist or a fluid-filled cyst may form
- A "catching" or "snapping" sensation may be felt when moving the thumb

-Difficulty moving the thumb and wrist.

-Numbness on the back of the thumb and index finger may occur

Causes:

-Overuse “Black Berry Thumb”

-Associated with pregnancy (fluid retention)

-“Mother’s Wrist” or “New Mommy Thumb”

-Rheumatoid Arthritis

Non-Surgical Treatment:

-Rest & Ice

-Immobilization / wrist & thumb splinting

-Avoiding activities that cause pain

-alter grasp patterns / use false grasp

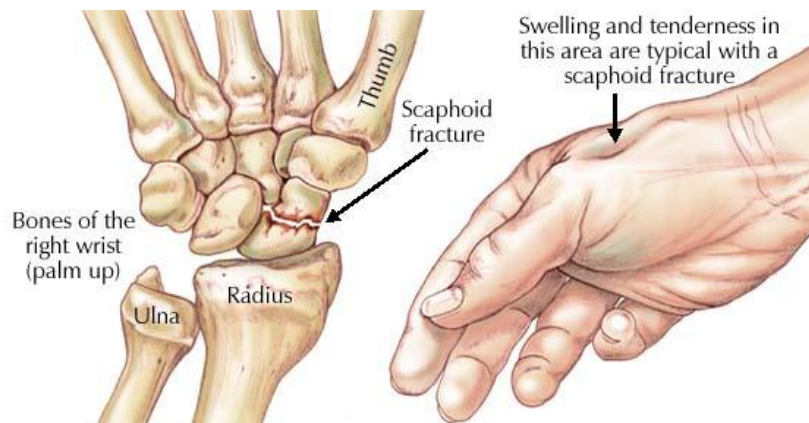
-better lifting mechanics & form

-reduce texting

-Anti-inflammatory medication (NSAIDs): by mouth or injected into tendon compartment to reduce the swelling and relieve the pain.

-Corticosteroids Injection into the tendon sheath

2) Wrist Injuries: Falling forward onto an outstretched hand is the main cause of most wrist injuries.



Fractures –Wrist fractures are the most common broken bone in people under 65years old. Most commonly the fracture occurs at the head of the radius bone where it attaches to the wrist. The second most common wrist fracture is a fracture of the Scaphoid bone, one of the carpal bones on the thumb side of the wrist.

TFCC Tear: Triangular fibrocartilage complex (TFCC) injuries of the wrist affect the little finger side of the wrist. Mild injuries of the TFCC may be referred to as a *wrist sprain*. The TFCC is made up of several ligaments and cartilage and makes it possible for the wrist to move in six different directions (bending, straightening, twisting, side-to-side).

Wrist Sprains & Strains: A muscle, tendon or ligament injury. A sprain is an over stretch or tear of the ligaments. A strain is due to a stretch in your muscle or tendon, that may result in a partial or complete tear in the muscle-and-tendon combination.

Treatment:

- Bone Reset, Casting or Surgery for fractures

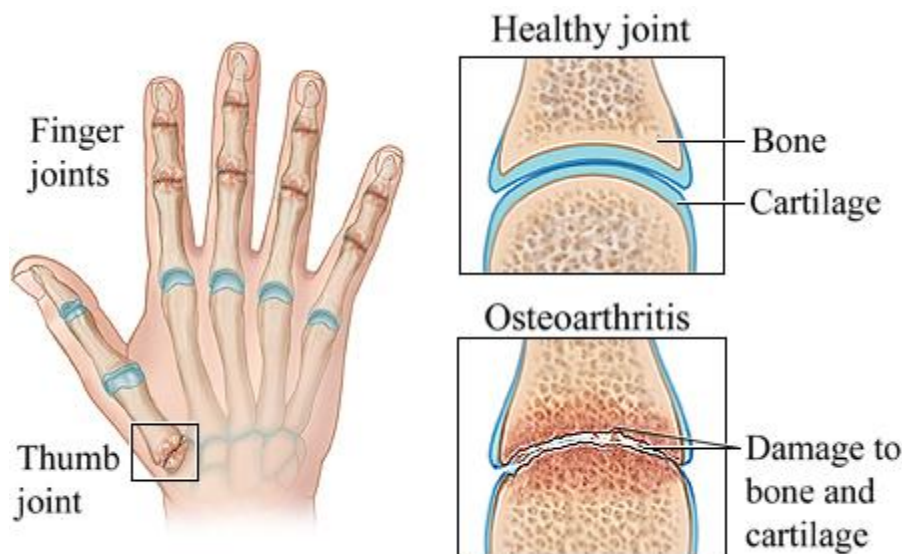
- RICE: Rest, Ice, Compression & Elevation for Mild Sprains

- Bracing for more moderate to severe sprains / strains

- Surgical Repair of torn ligament or tendon

3) Age Related Changes / Disease:

Osteoarthritis (OA) also called degenerative joint disease or “wear and tear” arthritis, is the most common type of arthritis and is characterized by the breakdown of the joint’s cartilage. This causes the bones to rub against each other, causing stiffness, pain and loss of movement in the joint. OA in wrist is uncommon & usually occurs due to past wrist injury. Thumb pain at the base of the thumb (basal joint) is usually caused by OA.



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Rheumatoid Arthritis (RA) is a disease in which the body's immune system attacks its own tissues and it's characterized by inflammation of the lining, or synovium, of the joints. It can lead to long-term joint damage, resulting in chronic pain & loss of function. RA is common in the wrist and if one wrist is affected usually both are.

Symptoms (OA)

- Deep aching pain at base of thumb
- Increase pain with pinch, writing, grasping
- Loss of range of motion
- Swelling
- Stiffness, especially with cold or damp weather
- Loss of pinch and grip strength over time

Causes (OA)

- Genetic Factors
- Previous (Sports) Injuries
- Work Related Joint Stress (Impact, Vibration)
- Poor Posture / Joint Misalignment
- Diet (highly acidic increases inflammation)

Treatment

- Move & Stretch Maintain Joint Mobility and Range of Motion
- Water Exercise for gentle muscle strengthening
- Yoga / Tai Chi
 - creates joint space
 - bring awareness to postural habits / misalignments
 - releases lubricating synovial fluid & nutrients to cartilage
 - stress reduction & muscle relaxation
- Compressive Joint Wraps and Soft Supports (keep joints warm & increase circulation)
- Maximum Supportive Braces for Sports
- Adaptive Aides and Devices to lessen joint stress
- Magnetic Therapy

- Alkaline Diet (Anti- Inflammatory)
- Topical Pain Relief Creams, Gels & Patches
- Anti-inflammatory & Pain Meds
- Joint Replacement

Prevention

- Maintain Ideal Weight
- Reduce Impact / Vibration / Trauma to Joints
- Good Posture / Movement Patterns / Alignment
- Strong Toned Muscles
- Use Proper Body Mechanics to reduce joint stress
- Joint Protection & Alignment Supports
- Healthy Diet with balanced pH

4) Posture & Conditioning:

- Weak Muscle Tone & Core Strength –sink into wrist joints
- Poor Posture and Joint Alignment
- Improper Form and Technique
- Ligament Laxity / Joint Hyper-Mobility

Prevention / Treatment

- Focus on correct alignment & proper form
- Strengthen arm & hand flexor & extensor muscles
- Use external supports while arm muscle and core strength is built
- Be mindful of ‘locking out’ hyper mobile joints

MODIFICATIONS:

Whether your wrist pain is caused by Carpal Tunnel Syndrome, Tendonitis, Arthritis or a Wrist Sprain you'll likely need to make modifications in your work, yoga practice and schedule to allow for healing.

1) Modify your Schedule: The objective of modifying your schedule is to reduce how often and how long you spend doing the pain inducing task. Urgent deadlines, productivity ratings or financial stress are real factors that contribute to overuse injuries. Many smart industries have implemented job rotation and other programs to reduce RSI in the workplace, thus saving money on workman's compensation claims and lost productivity.

Sometimes it is our leisure pursuits not our work that result in wrist pain. An over zealous yoga practice, particularly styles involving more weight bearing on the hands such as vinyasa flow, power yoga or ashtanga, may be the pain culprit and will need to be modified.

Examples for Modifying Work Schedule:

- 1) Part Time Work: a schedule of M, W & F will allow a day of rest in between.
- 2) Plan Ahead: instead of spending 6 hours banging out a report on the computer spread it out over 4 days for 1 ½ hour each day.
- 3) Set Time Limits: Break up the problem task into shorter time segments with rest and stretch breaks built into your day.
- 4) Job Sharing / Rotation: Can you recruit a co-worker to assist you or swap tasks with? Look at all options for creative scheduling.

2) Modify the Task: The objective here is to use an alternate method to accomplish the task, which may require a different set of muscles or reduce muscle tension and joint stress.

- 1) Change the Method: If you're an instructor with a wrist injury, give verbal directions instead of demonstrations or use a student to demonstrate.

If you practice frequent wrist stressing style of yoga, vary your practice to include more gentle types. Limit sun salutations and arm balances. Modify some asanas by bearing weight on forearms instead of hands.

If the computer is the culprit, consciously reduce keyboard time. Set up your work station so it's ergonomically optimal. Use your finger tips instead of finger pads for typing.

- 2) Change or Modify the Tool: Examples include using a track ball instead of a mouse, substitute an electric tool for a hand tool and increasing the diameter of the tool to open the grasp of the fingers and thumb.
- 3) Modify your Body Position: Use an ergonomic keyboard, set up your 'work station' optimally for your body and alternate standing with sitting. Alternate between a vertical surface (easel) & horizontal (table top).

- 4) Use your non-dominant hand: If your wrist pain is primarily in your dominant hand try to develop the skill to accomplish the task with your non-dominant hand. Start with something simple like stirring while cooking or dialing the phone then work towards using your computer mouse with your opposing hand. This may be challenging but is very useful to reduce RSI in the dominant hand. An added bonus is that it's good for your brain & coordination!

Q & A:

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