



## Base of Thumb Arthritis (CMCJ and STT Arthritis)

### What is Base of Thumb Arthritis?

Base of thumb arthritis refers to the wear and tear of the cartilage in the **Carpometacarpal Joint (CMCJ)** and **Scaphotrapeziotrapezoidal Joint (STT)** at the base of the thumb. These joints are responsible for allowing the thumb to move freely and perform essential tasks like gripping and pinching. Over time, these joints can become arthritic, leading to pain, stiffness, and difficulty with everyday activities. The condition can be **very painful** and may cause significant difficulty with tasks such as **opening jars** and **holding larger objects**.

### Types of Base of Thumb Arthritis

1. **CMCJ Arthritis:** This occurs at the base of the thumb where the **trapezium** bone meets the **first metacarpal** bone. It is the most common site of arthritis in the thumb and is often referred to as **thumb basal joint arthritis**.
2. **STT Arthritis:** This involves the joint between the **scaphoid, trapezium, and trapezoid** bones. While less common than CMCJ arthritis, **STT arthritis** is more characterized by **wrist pain** than thumb pain, often making it more difficult to diagnose. The pain may radiate from the wrist into the thumb, affecting mobility.

### Causes and Risk Factors

Base of thumb arthritis is **multifactorial**, and while some causes are well understood, others are not. The main contributing factors include:

- **Age:** While it can affect anyone over the age of 40, base of thumb arthritis is more common with increasing age.
- **Repetitive hand use:** Occupations or hobbies that involve heavy gripping or repetitive thumb movements.
- **Previous injury:** Past fractures or dislocations of the thumb can increase the risk of arthritis.
- **Gender:** Women are more likely to develop arthritis in the base of the thumb.
- **Genetics:** A family history of arthritis can increase the likelihood of developing the condition.
- **Joint instability:** Abnormalities in joint alignment or structure can contribute to arthritis. Connective tissue disorders, such as **Ehlers-Danlos syndrome** or **Marfan syndrome**, can also affect joint stability, increasing the risk of arthritis.

- **Inflammatory conditions:** Conditions such as rheumatoid arthritis may also affect the thumb joints.

## Symptoms

The symptoms of base of thumb arthritis can vary depending on the severity of the condition, but common signs include:

- **Pain** at the base of the thumb, especially when gripping or pinching
- **Swelling** around the base of the thumb or wrist
- **Stiffness** in the thumb, making it difficult to move, especially in the morning or after rest
- **Weakness** in the thumb, which can make tasks like opening jars, turning keys, or holding larger objects more challenging
- **Grating or grinding** sensation when moving the thumb (known as crepitus)
- **Worsening pain** with repetitive activities, such as texting or writing, which require thumb movement
- In cases of **STT arthritis**, pain may also radiate into the wrist, making it harder to pinpoint the exact source of discomfort
- A **thumb-in-palm deformity** may develop in severe cases, where the thumb becomes bent in towards the palm and cannot be fully straightened. This can cause difficulty in performing tasks that require thumb extension, such as gripping or holding objects properly. There may also be **hyperextension of the MCPJ (metacarpophalangeal joint)**, where the joint at the base of the thumb becomes excessively extended, further limiting thumb function.

## Diagnosis & Investigation

Base of thumb arthritis is diagnosed based on:

- **Clinical history:** The surgeon will inquire about the duration of symptoms, pain intensity, and any history of trauma or repetitive use.
- **Physical examination:** The surgeon will check for tenderness, swelling, and restricted movement at the base of the thumb. Special tests such as the **Grind Test** may be performed to check for arthritis in the CM CJ.
- **Imaging tests:** X-rays are typically used to confirm the diagnosis and assess the extent of joint damage. MRI or CT scans may be used in more complex cases.

## Non-Surgical Treatment

Initial treatment for base of thumb arthritis focuses on conservative, non-surgical methods:

- **Splinting:** A thumb splint can help stabilize the joint, reducing pain during activities.
- **NSAIDs (Nonsteroidal Anti-inflammatory Drugs):** Medications like ibuprofen can help reduce inflammation and pain.
- **Steroid injections:** Corticosteroid injections can provide relief by reducing inflammation and swelling in the affected joint.
- **Hand therapy:** A hand therapist can provide exercises to strengthen the muscles around the joint and improve flexibility.

- **Activity modification:** Avoiding activities that aggravate symptoms can help manage the condition.

## Surgical Treatment

If non-surgical treatments fail to relieve symptoms, several surgical options are available, depending on the severity and location of the arthritis:

1. **Trapeziectomy:** This surgery involves removing the **trapezium bone** in the CMCJ. **LRTI** (ligament reconstruction and tendon interposition) is performed on a **case-by-case basis**, and the decision is usually made **intraoperatively** depending on the extent of arthritis and joint instability. LRTI involves using a tendon to replace the missing bone, providing support and improving joint function.
2. **CMCJ Arthroplasty (MAIA):** A more advanced option for CMCJ arthritis, **CMCJ arthroplasty** involves replacing the damaged joint with a prosthesis (artificial joint). The **MAIA** system is a type of prosthetic replacement specifically designed for the CMCJ, offering long-term relief and improving function.
3. **Denervation:** This procedure involves cutting the sensory nerves around the arthritic joint, reducing pain without altering joint motion. It may also be an option for patients who are wanting to postpone more invasive surgery, as it often provides good short-term results.
4. **Fusion (Arthrodesis):** Joint fusion may be more appropriate for individuals with demanding, **manual jobs** where preserving joint stability and strength is critical. This procedure eliminates pain by fusing the bones in the affected joint, but it also reduces movement in the thumb. It is considered when other treatments have failed or for patients who place high functional demands on their thumbs.

## Recovery

- After surgery, most patients will need to wear a splint for a period of time to protect the thumb.
- **Hand therapy** is usually recommended to improve the strength, flexibility, and function of the thumb after surgery.
- The recovery time varies depending on the type of surgery performed:
  - **Trapeziectomy** with LRTI may take **6–8 weeks** for initial recovery, with full recovery occurring over several months.
  - **CMCJ arthroplasty** typically involves a shorter recovery period, and patients often begin to **function more quickly**, with many returning to normal activities in **3–6 weeks**.
  - **Denervation** shows **recovery in about 2 weeks**, with patients often returning to light activities quickly.
  - **Fusion (Arthrodesis)** requires **more prolonged immobilization**, usually **at least 8 weeks**, with a slower recovery overall. Full recovery can take several months depending on individual healing.

## Risks

Surgical treatment for base of thumb arthritis carries certain risks:

- Infection

- Nerve injury
- Stiffness or reduced range of motion
- Complications with the prosthesis in arthroplasty
- Recurrence of arthritis (in some cases)

### **When to See One of Our Hand Specialists**

You should consult a hand specialist if:

- You experience persistent pain at the base of your thumb, particularly when gripping or pinching
- Symptoms are interfering with daily activities, such as typing, cooking, or opening bottles
- Your thumb has become increasingly stiff or deformed
- Conservative treatments (like splints or medication) are no longer effective