

**Appendix 1.** Participant's booklet.



# Osteoarthritis of the Carpometacarpal Thumb Joint

Patient Information Booklet

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# Osteoarthritis of the carpometacarpal thumb joint

This booklet has been written to provide you with information about your thumb arthritis and give you a better understanding of your thumb joint, why you experience pain, and how you can manage your symptoms.

## **It contains information about:**

- Anatomy of the thumb carpometacarpal joint
- Osteoarthritis of the thumb carpometacarpal joint
- Joint protection
- Assistive devices
- Heat and cold
- Pain relief

## Anatomy of the carpometacarpal thumb joint

The thumb carpometacarpal (CMC) joint is where the metacarpal bone of the thumb attaches to the trapezium (carpal) bone of the wrist (see diagram on the following page).

## CMC joint arthritis

### What is OA?

Osteoarthritis (OA) is the most common form of arthritis and affects mainly the joint's cartilage and surrounding bone tissue.

There are many factors that can increase the risk of the developing OA; for example it is more common in females over the age of forty, and is more likely to develop in a joint that has had a previous injury or operation.

A joint is where two bones meet to allow movement. Muscles pull on tendons, which are attached to the bone to produce movement.

The ends of the bones are covered in a smooth tissue called cartilage that cushions the joint. There is a space between the two ends of bone making up the joint.

The joint is held together within a joint capsule, which contains a thick fluid (synovial fluid) providing lubrication to allow smooth movement. Surrounding ligaments and muscles also maintain the stability of the joint.



First metacarpal of the thumb

Carpometacarpal (CMC) joint

Trapezium (carpal bone of the wrist)

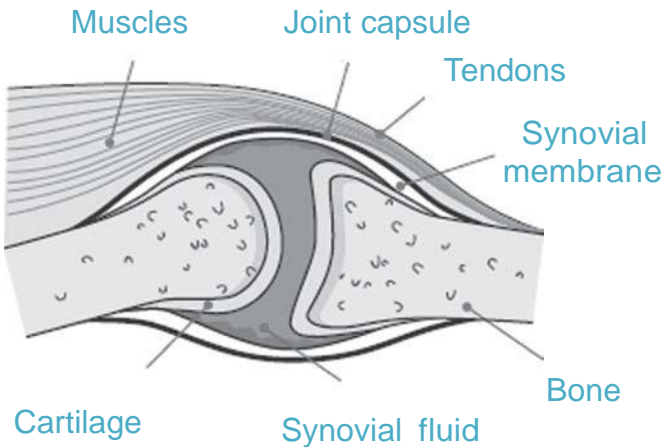
When OA develops in a joint, the cartilage gradually roughens and becomes thin, and the bone underneath thickens. The bones at the edge of the joint grow outwards in bony 'spurs' (see diagrams) and excess synovial fluid can be produced, causing the joint to swell.

This can mean that you avoid using these joints, subsequently causing the surrounding muscles to weaken.

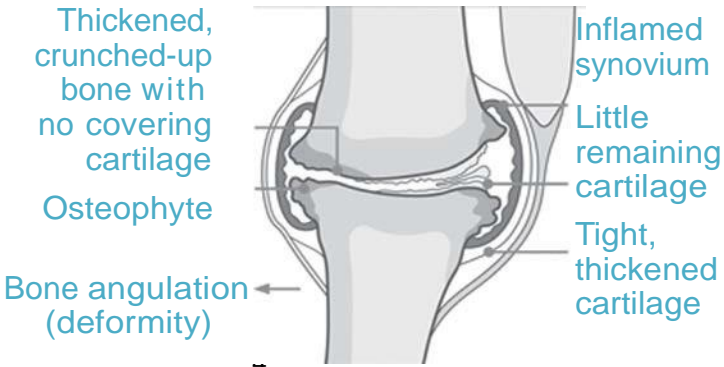
In severe OA, the cartilage can become so thin that it no longer covers the joint surfaces, and damage is caused to the bone ends by them grinding against each other during movement.

This can, over time, change the shape of the joint creating a deformity, as the joint is no longer held in its natural position.

**A healthy joint**



**A joint with osteoarthritis**



## Common symptoms of CMC OA

**Pain:** Usually felt as a sharp or aching pain at the base of the thumb. The pain is usually worse during movement and relieved by rest.

**Reduced grip strength:** It may be difficult to grip or pick up objects.

**Stiffness:** Following periods of rest (eg in mornings).

**Swelling:** Around the base of the thumb.

### **Muscle Weakness and Instability**

**Deformity:** In the later stages of the condition the thumb joint may collapse inwards into a subluxed position (see diagram).

The joint protection techniques and the use of assistive devices (as described in this booklet) can help to relieve these symptoms and slow the progression of this condition.



## Joint protection

Most people find their own ways of doing activities that are less painful. It is important that you are aware of the activities that cause your thumb joint to be painful so that you can consider other ways to perform these activities that place less strain on the painful joints.

Each time you experience thumb pain when doing an activity, stop and consider whether the way you are doing it is causing stress on the joint. Think about if there is another way the activity can be performed that is better for your joints.

### For example:

- When doing activities that involve a pinch grip (eg writing) keep the top joint of the thumb bent and the wrist extended.
- When doing activities that involve turning or twisting avoid fully straightening the top joint of the thumb and the thumb crossing in front of the palm.



**The following are joint protection techniques that may help to reduce the pain you experience when doing activities and prevent further damage to the joints:**

- Take notice of any pain you feel, it can serve as a warning that the way you are performing the activity is causing damage to the joint.
- Spread the load over several joints (eg by carrying items on two flat hands rather than gripping with your thumb).
- Use larger stronger joints rather than putting the strain through your thumb joints.
- Use less effort (eg push or slide heavy items rather than carrying).

# Examples of joint protection techniques

Instead of this ...



... try this



Instead of this (holding a pile of papers with one hand) ...



... try this (holding it with two hands)



Hug large objects close to your body



'Shift not lift' - slide a plastic jug of water to the kettle - only use as much water as you need



## Assistive devices

There are a variety of small aids that are available to assist you in maintaining your independence completing daily activities.

**For example:**



**Jar twisters:**  
Jar twisters to help you open tight jars.



**Wide grip cutlery:**  
Wide grip cutlery if you find it difficult or painful to hold cutlery.



**Pen grips:**  
Pen grips to support your grip or writing.



**Tap turners:**  
Attach onto your taps to make them easier to turn on and off.



**Key turners:**  
Key turners if you have difficulty turning key in door.



**Plug pulls:**  
Assists grip if you have difficulty removing plugs.

An occupational therapist (OT) can discuss specific activities that you are finding difficult or painful and advise you whether any assistive devices are available to help.



## Heat and cold

Applying heat, such as a hot pack (microwaveable wheat pack), heating pad or hot water bottle to stiff, painful joints may help relieve these symptoms. If your joints are hot and swollen you may find it useful to apply an ice pack.

Try applying heat or cold to the painful area for 15 minutes. Always have a layer (such as a tea towel) between your skin and the heat or ice pack. You can repeat this whenever you need to throughout the day. Make sure the temperature of the skin returns to normal in between applying heat or ice packs to prevent damage to the tissues.

## Pain relief

Some people find that paracetamol or anti-inflammatory medications (such as aspirin and ibuprofen) can help to reduce the pain experienced.

This should always be discussed with your GP or consultant as they will be able to recommend what type of pain relief and what dose is appropriate for you, depending upon any other medical conditions you have.

## Acknowledgments

This booklet has been adapted with permission from the Hand Therapy Unit at James Cook University Hospital.