

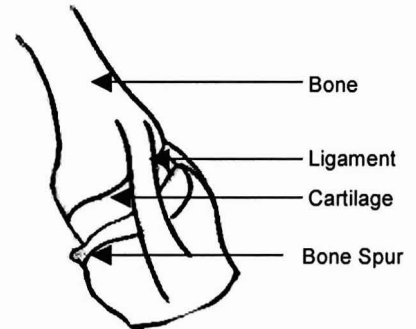
Mary Pack Arthritis Program  
Occupational Therapy

## OSTEOARTHRITIS AND YOUR THUMBS

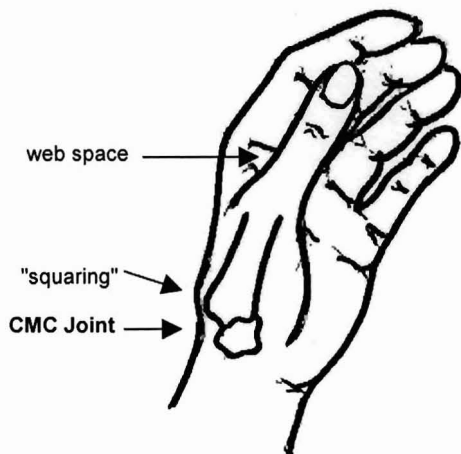
### WHAT IS OSTEOARTHRITIS?

**Osteoarthritis (OA)** is a degenerative disease that affects joints. Inside a joint the bones are covered with a tough, shiny material called **cartilage**. It starts to wear down and becomes dry and less elastic. As the disease progresses, the cartilage can no longer absorb shock or lubricate the joint effectively.

Without healthy cartilage, the **bones** receive extra pressure and may grow **bone spurs** on their edges. The **ligaments** around the joint become loose and cannot hold the bones tightly together. With all these changes, a joint may become painful, enlarged and unstable. It may also lose some of its mobility.



### HOW DOES OA AFFECT MY THUMBS?



The joint at the base of the thumb, called the **carpometacarpal (CMC) joint**, is the most common site in the body for OA. It is made up of two saddle-shaped bones, stacked on top of each other. Their shape allows the thumb to move in a full, circular motion. This joint is not very strong and it relies on the **ligaments** around it for stability.

Grasping an object between the thumb and index finger places a lot of force on the CMC joint and its ligaments. (1 kg of pressure to the tip of the thumb produces 12 kg of pressure at the CMC joint) Over time this strain causes instability and damage to the joint.

The early signs of OA are **pain, tenderness** and **weakness**, most noticeable during activities that require **prolonged pinching** or **gripping**. As the disease progresses the bones may move slightly out of place, making the base of the thumb look “**square**”. The surrounding muscles lose their bulk and the area between the thumb and index finger (the **web space**) cannot be fully opened. (See diagram on previous page)

The CMC joint is most **stable**, or strong, when the thumb is held away from the palm, in **abduction**. In this position, the carpal bones fit together securely and there is very little strain on the ligaments. This is the position used for holding a large object like a drinking glass or grasping a thick book.

The CMC joint is **not stable** when the thumb is held close to the palm, in **adduction**. In this position, the bones do not fit together well and there is strain on the surrounding ligaments. This position is used when holding small objects, during activities like turning a key, tying shoelaces or reading a newspaper.

### **Stable Position ( Abduction )**



### **Unstable Position ( Adduction )**



## **HOW CAN I PROTECT MY THUMBS?**

### **REST, HEAT & COLD**

- A short **rest period** can often relieve pain that occurs with too much hand use. Applying **heat or cold** to your hands while resting can also

help to reduce pain. Water, gel packs and wax baths should be applied for 10 to 15 minutes and are most beneficial when used just before exercise.

## SPLINTS

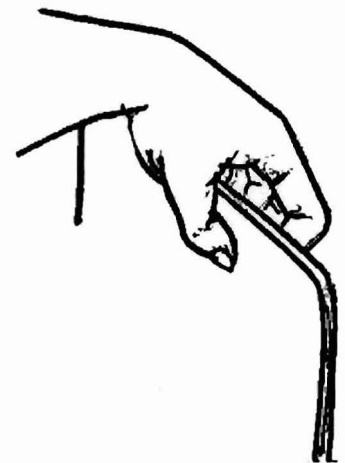
- Wearing a **CMC splint** holds the thumb in abduction, its most strong and stable position (see diagram on previous page). During hand activities, the splint holds the thumb away from the palm and the fingers are encouraged to bend toward the thumb. This reduces the strain on the CMC joint. Splints have been proven to reduce pain and long term joint damage.
- A splint may also be **worn at night** to decrease pain, stretch the web space and improve sleeping comfort.

CMC Splint

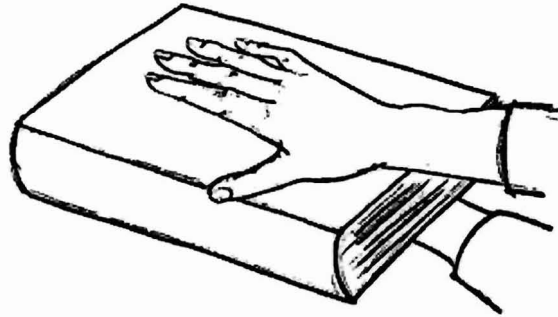


## SAFE THUMB POSITIONS

- To reduce thumb strain avoid **adduction**, a “side pinch position” in which the thumb is held close to the side of the hand and the tip of the thumb is placed on the side of the index finger (see diagram on previous page). Instead try to hold the thumb away from the side of the hand and keep the **tip of the thumb** in contact with the **tips of the index and middle fingers**. This places your thumb in its stable, **abducted** position. This position will reduce pain when doing activities like pulling weeds, removing files from a file drawer or turning a key.



- Avoid direct pressure to the **palm of the hand**, near the base of the thumb. For example, when using a stapler, push down with the outside border of hand or the forearm. If turning the lid off a jar causes pain, try using a jar-opener. There are many styles available.
- Hold heavy objects with **two hands**, instead of using just one. Place the object between or on top of two flat hands, instead of using your thumbs to grip.



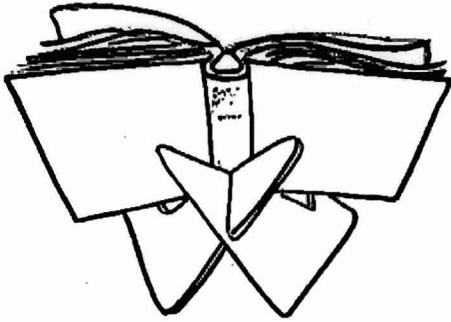
- Avoid activities that require **prolonged gripping**, such as hand sewing or writing. If you can't avoid them, rest your hands frequently and stretch the thumb web space (see exercises on pages 7&8). To reduce pain during activities, try wearing a CMC splint and try to use some of the equipment listed in the next section.

## ADAPTED TOOLS AND EQUIPMENT

- **Enlarged, padded handles** on tools and utensils, such as pens and vegetable peelers, hold the thumb in its stable position and reduce the force required to grip. **Non-slip surfaces** on handles also help to improve grip. Handles can be

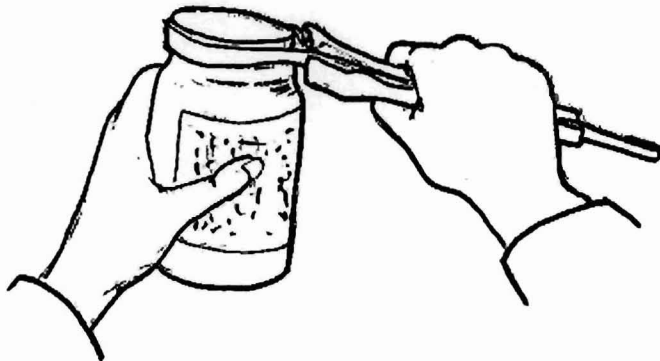


padded with rubber tubing (rubazote) or pipe insulation. Many everyday utensils are now available, with “easy to grip” handles.



- **Avoid holding** objects for long periods of time. When reading, bookrests and lap desks (available from stationery stores) help to avoid prolonged gripping and reduce strain on thumbs. A piece of non-slip material can be placed under a mixing bowl to hold it steady. It also can be used to help turn stubborn doorknobs and faucets.

- Some types of adapted equipment like jar openers and key turners, use **leverage** ( a long handle ) to reduce the effort needed. Other tools, such as pruning shears and screwdrivers, are designed to enhance grip strength by using a “**ratchet**” mechanism. Both of these techniques will reduce the strain on your joints.

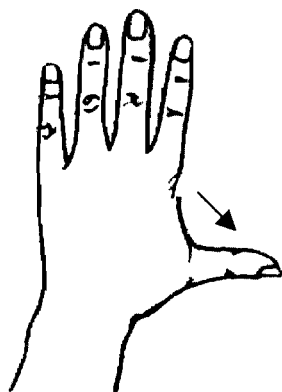


Notes:

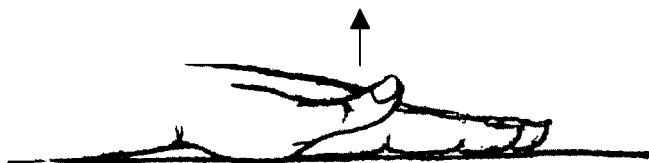
## EXERCISES

To make thumb exercises part of your daily routine, try to do them at the same time each day and connect them to another activity that you already do regularly. Exercises should be done **twice a day**, repeating each exercise **5 to 10 times**. Be sure to relax your hands for a few seconds between each one. To exercise more effectively **apply heat or cold** to your hands, for **10 to 15 minutes** before you start!

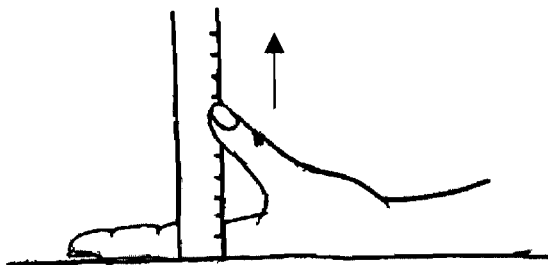
- With both hands "**palms down**" on the table and your thumbs relaxed, **stretch** both thumbs out as far as possible away from the hand, trying to form a right angle between the thumb and the index finger. Hold for 30 seconds, then return to your starting position. Repeat 5 times.



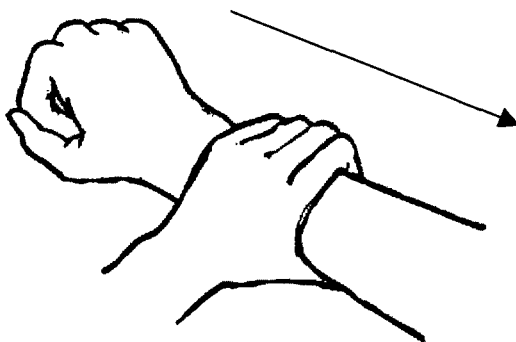
- With both hands "**palms down**" on a table, try to press your hands as **flat** as possible onto the table top, then lift your thumbs **up** off the table as far as they will go. Concentrate on achieving a flat position with your palms, and don't worry if you cannot lift your thumbs too far. Hold for 30 seconds, then return to the starting position. Repeat 5 times.



- Place one hand flat on a table, with the “**palm up**”. Place a ruler beside the knuckle (**MCP joint**) of the index finger. Move your thumb tip **up** along the side of the ruler as far as possible, noting on the ruler how much movement you have. Hold for 30 seconds, return to your starting position and repeat 5 times. Repeat exercise with your other hand.



- To **stretch the web space**, grasp your wrist. Apply moderate pressure and **slide** your hand along your forearm toward the elbow, until you feel a **stretch** in the web space, between your thumb and index finger. Hold this position for approximately 30 seconds. Return to the starting position and repeat 3 times for each hand.



- Touch the tip of your thumb simultaneously to the **tip of all fingers**, trying to form a **circle** with the thumb and index finger. Open your hand completely after each touch. Repeat 5 times with each hand.

