# Information for Patients about Hand & Elbow Surgery

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MURDOCH ORTHOPAEDIC CLINIC

# Information for Patients about Hand and Elbow Surgery

## Introduction

We have put this information booklet together to educate our patients about their Hand and Elbow condition, treatment options and post-surgical care.

Please keep this booklet for future reference. It is not a detailed source of information and you may also wish to refer to our website www.allanwangorthopaedics.com.au for animated videos of surgical procedures. If you require further information or have concerns regarding your treatment please contact the office to discuss with Dr Wang or his staff.

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# Carpal Tunnel Syndrome

## What is it?

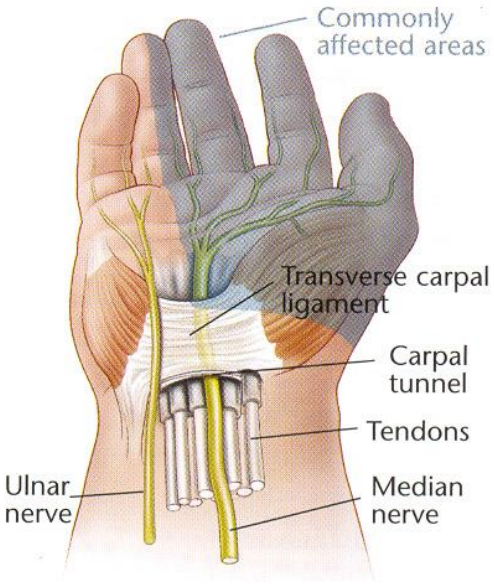



Figure 1

Carpal tunnel syndrome is a condition caused by compression of the median nerve at the level of the wrist joint. Here the median nerve passes into the carpal tunnel along with flexor tendons and the tendon lining called tenosynovium.

Carpal tunnel syndrome occurs when pressure builds up in the tunnel, and this can be due to swelling of the tenosynovium, fractures, arthritis, fluid retention during pregnancy and certain conditions such as diabetes and thyroid disease.

## Symptoms

When the pressure on the median nerve becomes severe, you may notice wrist pain, tingling and numbness and clumsiness in hand movements. The tingling usually affects the thumb index and middle fingers and is worse at night or gripping activities eg driving a car. When carpal tunnel syndrome is severe, and longstanding, permanent nerve damage may occur, causing permanent numbness in the fingers, and the thumb (thenar) muscles may waste away.

## Diagnosis

Carpal tunnel syndrome is usually diagnosed from your symptoms, and examination of your hand. X rays or scans may be required as there may be other pathology such as arthritis or ganglions or old trauma contributing to wrist symptoms. Sometimes electrical studies (nerve conduction velocity and electromyogram) are performed. These studies are uncomfortable but may need to be done, as your symptoms may be due to nerve compression elsewhere in your arm or in your neck.

## Treatment

Non operative treatment is often successful in less severe cases. A splint may rest the wrist and allow the swelling in the carpal tunnel to settle. Anti-inflammatory tablets also help, or injections of corticosteroid directly into the carpal tunnel. Altering the workplace may help if you do a lot of repetitive work with your hands.

In more severe cases, surgery is required. Pressure on the median nerve is released by surgically cutting the transverse carpal ligament. This can be done via a direct skin crease incision over the front of the palm ***(Fig 2)***; or by the endoscopic method where a telescope is passed via two mini incisions under the ligament (***Fig 3),*** and the ligament is released from it's under surface.

**Figure 2**

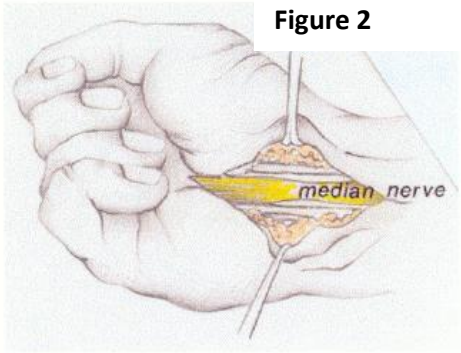
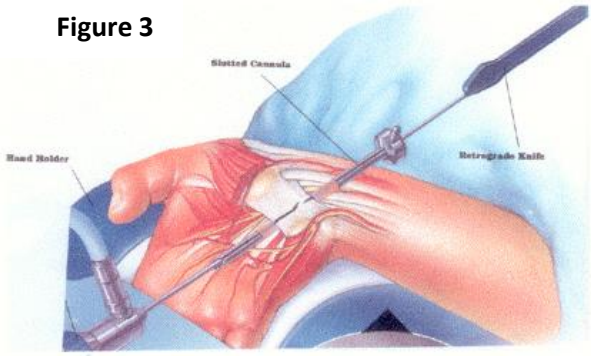



**Figure 3**



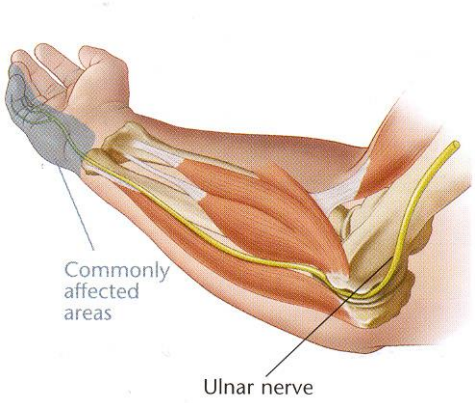

Following surgery the night time tingling in your hand usually settles quite quickly. If your fingers had established numbness and severe EMG changes prior to surgery then after surgery, the numbness may take months to resolve and recovery may be incomplete. Reduction in grip strength and soreness over the palm where the ligament has been divided ("pillar pain") may last for weeks or even some months especially if you do heavy work. The endoscopic method may have an advantage over the direct incision method in that the recovery of function is quicker. However it has the disadvantage that complications may occur. These are very uncommon and include infection, bruising of the nerve, or damage to the blood vessels or tendons in the palm.

After surgery, keep your hand elevated and do gentle finger exercises. Keep the bandage clean and at two week, stitches are removed. Heavy activities are avoided for 4-6 weeks.

# Cubital Tunnel Release

## What is it?

Cubital Tunnel Syndrome occurs when the ulnar nerve is compressed at the back of the elbow ("funny bone"). This causes tingling and numbness in the small and ring fingers, pain along the inner forearm, and sometimes weakness in using the hand. Symptoms are usually worse when the elbow is held in a flexed position eg holding a phone, sleeping at night etc. The nerve may be tingly when touched; and can be unstable, slipping forward and backwards when the elbow is flexed then straightened.




## What investigations are needed?

Usually an electrical test (EMG) is ordered to determine the severity of ulnar nerve compression, and also to rule out nerve compression at the wrist (eg carpal tunnel syndrome) or a pinched nerve in the neck.

X rays maybe required if there is an arthritic bone spur pressing on the nerve. An ultrasound scan will show if the nerve is unstable, or if there is adjacent tendon inflammation (medial epicondylitis).

## What are the treatment options?

Minor cubital tunnel syndrome responds to rest, anti-inflammatories and a resting splint.

More severe ulnar nerve compression often needs surgery, as permanent nerve damage can occur without treatment. Surgery involves an incision over the inner aspect of the elbow. Sometimes the ligament overlying the nerve is released to decompress the nerve (neurolysis). Usually the nerve is released and shifted forwards, creating some "slack" in the nerve, so that it is nor stretched when the elbow is held flexed (transposition).

## After Surgery

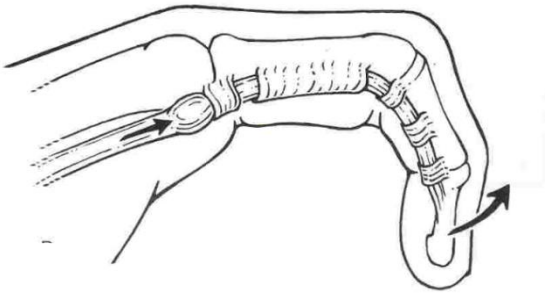
A sling is required for 2 weeks, and only light housework or office activities are permitted for the following six weeks. During this time, gentle finger and wrist exercises are encouraged to prevent pain and stiffness (dystrophy). Lifting the arm overhead several times daily will prevent frozen shoulder. The surgical scar maybe swollen, bruised and tender, early after surgery.

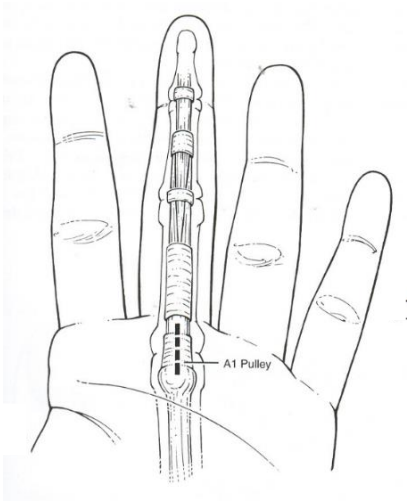
Recovery following ulnar nerve decompression surgery may take place over many months. If nerve compression was severe, recovery may be in-complete. Hand therapy may be prescribed by Dr Wang if progress is slow.

# Trigger Finger

## What is it?

Trigger Finger or Trigger Thumb are conditions caused by swelling of the flexor tendons (tenosynovitis) which bend the fingers into the palm. The tendons glide through a series of tunnels, and when the tendons swell they cause a painful clunk or "trigger" when they squeeze through the opening of the tunnel (flexor sheath).






The triggering is usually felt at the base of the digit. A lump may also be felt at the base of the thumb. Occasionally the finger becomes stuck ("locked") and will not straighten or bend on its own accord.

## What causes it?

Trigger Finger may arise with overuse of the hand or an injury, which cause the flexor tendon to swell. Certain medical conditions including diabetes, gout or rheumatoid arthritis may also cause triggering at the digits.

## How is it treated?

Treatment includes anti-inflammatory tablets and a period of rest, to reduce the swelling of the flexor tendons. An injection of cortisone at the base of the finger may also help.

When triggering is more severe, with regular and painful catching when the finger is bent, surgery is usually required. Under a GA, a small incision is made in the palm at the base of the affected finger. The flexor tendon is located and the tunnel surgically opened. This allows smooth gliding of the swollen tendon. The tendon swelling (tenosynovitis) may need to be surgically removed. The digital nerves are carefully protected during surgery. Because they are immediately adjacent to both the flexor tendons and tunnel, there is a very small possibility of the nerve being damaged during surgery, causing some numbness at the fingertip.

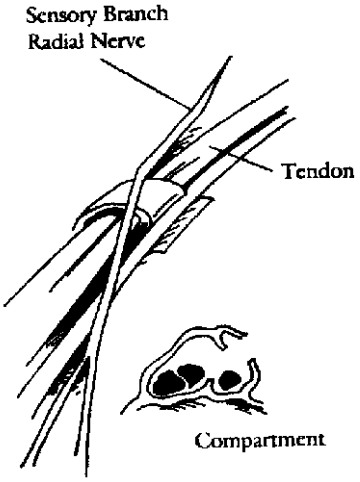
## What can I expect after surgery?

Mr Wang applies a sterile dressing which should remain intact, clean and dry until he reviews you at 10-14 days after surgery. You should keep your hand elevated in a sling to minimize swelling. Gentle finger, wrist, elbow and shoulder exercises are encouraged to minimize stiffness. Weakness of the finger is common. The proximal interphalangeal joint may be painful and stiff and extension stretches are required. You can resume light work or activity at 5-7 days after surgery but any heavy work should be avoided for at least 4 weeks.

# De Quervain's Tendonitis

## What is it?

De Quervain's Syndrome is a condition caused by inflammation and swelling of the thumb tendons at the wrist level. When you grip or twist the wrist, these tendons glide in a tunnel and when the tendons become very swollen, they cannot glide freely. The anatomy maybe variable with an accessory compartment, thick septum, ganglion formation may need surgical treatment.




Surgery opens the compartment over the inflamed tendon

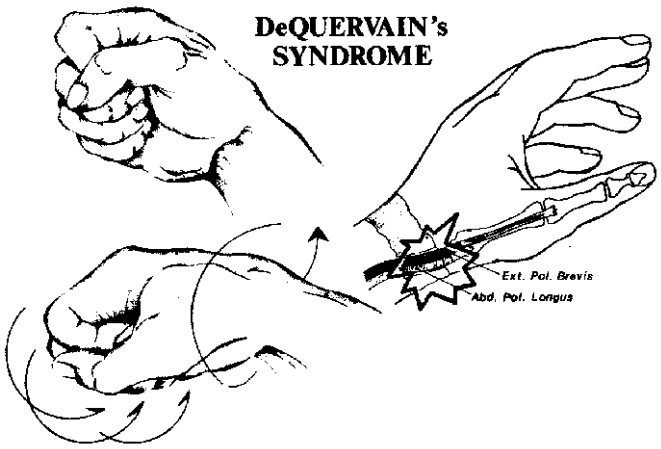
## Symptoms

Pain over the thumb side of the wrist. Symptoms are worse on repetitive or heavy activity.

## Treatment

Often resting the thumb and wrist in a soft splint or even a hard plastic splint will relieve symptoms. Anti-inflammatory tablets, cortisone injections and modifying work activities also help.

When symptoms are severe, surgery is required. A general anaesthetic is required but surgery is done as a "daystay". The tunnel enclosing the swollen tendons is opened. This relieves the pressure and as the inflammation settles down, the pain and wrist motion will gradually improve. The swollen lining of the tendon (tenosynovium) is also excised. Some bruising and swelling are common and there may be some irritation and temporary numbness around the surgical scar. A bandage is worn for one week, then the stitches are removed. Light activity can start at 1-2 weeks after surgery, and heavier activity can begin at 4-6 weeks after surgery.



# Ganglions and Cysts

## What are they?

Ganglions are swellings which grow on the hand and wrist. They are common and usually arise from a nearby joint or tendon sheath. Ganglions are filled with fluid and may feel hard and be painful when they are under pressure, or with constant use of the hand or wrist. Ganglions may arise due to a specific injury, heavy repetitive use of the hand or may be due to an underlying arthritis process. They are not malignant (cancerous).

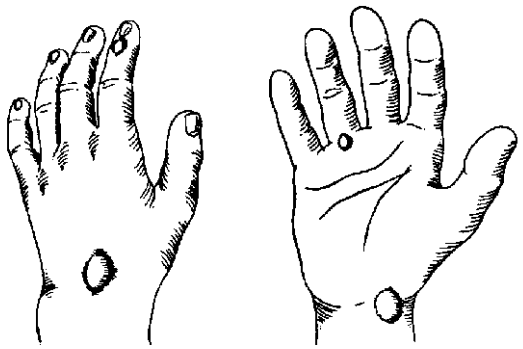


Figure 1: Common locations for Ganglion

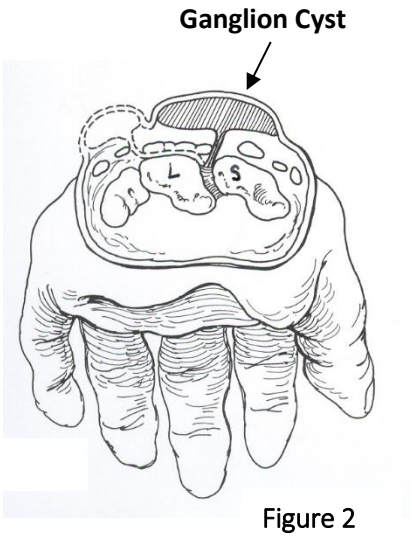



Figure 2

## How are they treated?

Ganglions may fluctuate with size, occasionally they may even disappear on their own accord. If your ganglion is causing symptoms, it may require treatment. Dorsal ganglions can be aspirated and injected with cortisone. Palmar ganglions may benefit from rest or wearing a splint.

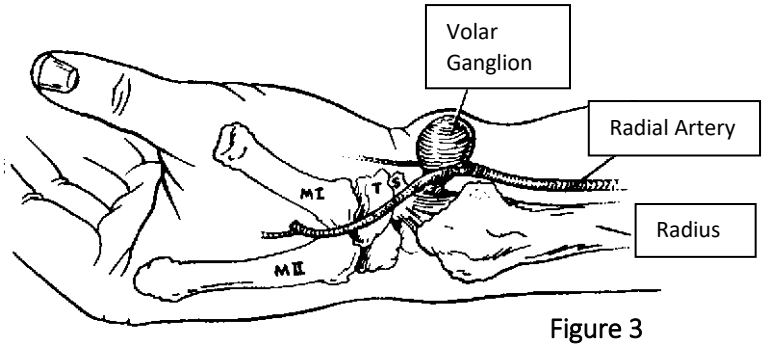



Figure 3

Large ganglions usually require surgical removal. Surgery removes not only the ganglion but also the "root" into the joint or tendon sheath of origin. ***(Fig 2)*** This helps to prevent the ganglion recurring. Nevertheless a small number of ganglions may recur especially with repetitive or strenuous use of the hand.

Surgery is best performed under a GA. Mr Wang operates under Loupe magnification. However as some ganglions grow around arteries and small skin nerves there is still a small risk of damage to these structures in trying to completely remove the ganglion. ***(Fig 3)***

## What happens after surgery?

Surgery is usually done as a "daystay" and you will be discharged from the hospital as soon as you are comfortable. Please keep your hand elevated, wear a sling for the first week and do gentle exercises to stop your fingers, elbow or shoulder getting stiff. Please also keep your bandage dry and clean until Mr Wang reviews you in about 10-14 days after surgery. You may be able to do light work with your hand one week after surgery but anything heavy should be avoided for at least one month.

# Arthritis at the Base of the Thumb

## What is it?

Any condition that inflames or destroys a joint is called arthritis. In a normal joint, cartilage covers the bone ends allowing them to glide smoothly and painlessly against each other. In osteoarthritis of the base joint of thumb, the cartilage layer wears through and bone ends grate causing pain and stiffness. ***(Fig 1)*** Later the bone ends start to slip out of the joint and a bone bump and deformity occur.

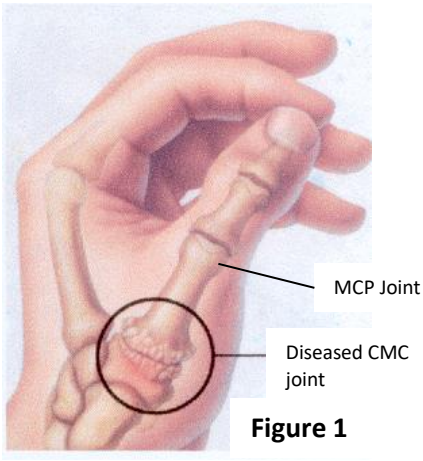



**Figure 1**

## Symptoms

You may have pain and feel a grating sensation at the base thumb joint (Carpometacarpal joint) when you pinch or grip strongly. You may have difficulty turning taps or using a key in a stiff lock. Later, deformity occurs at your thumb joints and weakness develops. Carpal tunnel syndrome may occur with numbness in your fingers especially occurring at night.

## Treatment

In the early stages, anti-inflammatory tablets or cortisone injections may help the arthritic thumb joint. A resting splint may allow the inflammation to settle. Later on surgery may be necessary.

In early stages, an **arthroscopy** "keyhole" surgery debridement can clean out the damaged joint and improve symptoms. Later the Basal thumb joint can be treated by fusion with **steel pins**, causing some stiffness but local pain is improved. An **osteotomy**, where the metacarpal bone is cut and realigned is also helpful in early cases. Very good results are achieved by removing the arthritic carpal bone (trapezium) altogether **(excision arthroplasty)**. The joint is reconstructed with a wrist flexor tendon. This tendon 'cushions' the base of the metacarpal, preventing painful bone grating, and improving joint movement ***(Fig 2)***. Recent advances include the use of a pyrocarbon spacer instead of a wrist tendon.

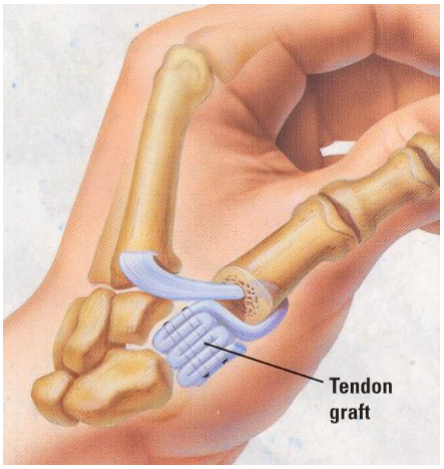



**Figure 2**

In severe cases, sometimes the adjacent joint (scaphotrapezoid or metacarpophalangeal joints) develop arthritis and deformity. These joints may also require treatment to reduce pain in the thumb region.

After surgery, a plaster splint is worn for 2 weeks. A protective plastic splint is worn part time for another month and then exercises can be done to regain movement. The thumb will become stronger over several months.

# Wrist Arthroscopy

## What is it?

Wrist arthroscopy is "keyhole" surgery of the wrist joint. Arthroscopy of the wrist joint is less common compared to knee and shoulder arthroscopy, because of its small size and the requirement for special miniaturised instruments.

## When is it required?

Wrist arthroscopy is used to treat a number of conditions including fractures, arthritis, and soft tissue injuries such as ligament disruption to the small carpal bones of the hand, and tears of the triangular fibro cartilage (TFC). Arthroscopic debridement and reconstruction can improve wrist symptoms, and due to the keyhole nature of surgery, recovery is faster. Sometimes wrist arthroscopy is accompanied by open surgery, including surgical repair and pinning of ligament tears, denervation procedures; or ulnar bone shortening osteotomy which decreases load across the damaged joint. The rehabilitation and recovery from open wrist surgery is longer than for arthroscopic surgery alone.

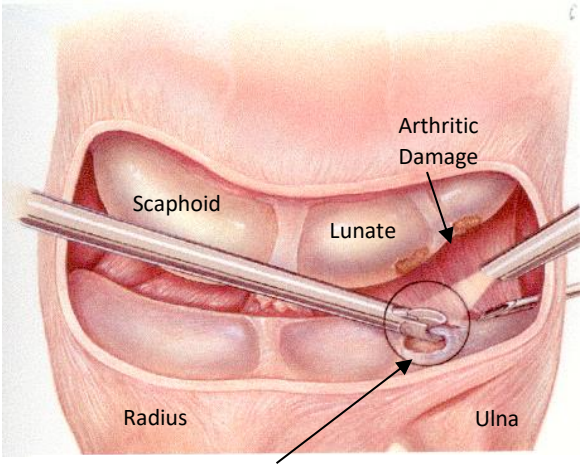
## How is wrist arthroscopy performed?

Under a general anaesthetic, the wrist joint is distracted by suspending the hand by its fingers in a special traction tower.

The wrist joint is inspected via several viewing "portals" which are puncture incisions over the back of the hand. Instruments are passed via these portals to surgically treat abnormalities. The back of the hand has a large number of fine skin nerves, any of which may be damaged by any of the puncture incisions. This may cause a small patch of numbness which is usually temporary on the back of the hand. The puncture incisions can also develop an infection. These complications of surgery are very uncommon.

## What can I expect after wrist arthroscopy?

The post-operative program depends on the underlying condition being treated. Wrist fractures and some soft tissue repairs will need plaster cast immobilization. Arthritic problems only need a bandage and can be mobilized early to minimize stiffness. In all cases, please keep the operated area elevated to reduce swelling and wear a sling for the first week. Do gentle finger, elbow and shoulder movements. Mr Wang will need to review you 10-14 days after surgery.



Debridement Triangular Fibrocartilage Tear

With regards to work, very light activity can begin one week after your wrist surgery. Heavy work should wait until the 4-6 week stage at least depending on the condition treated.

# Dupuytren's Disease

## What is it?

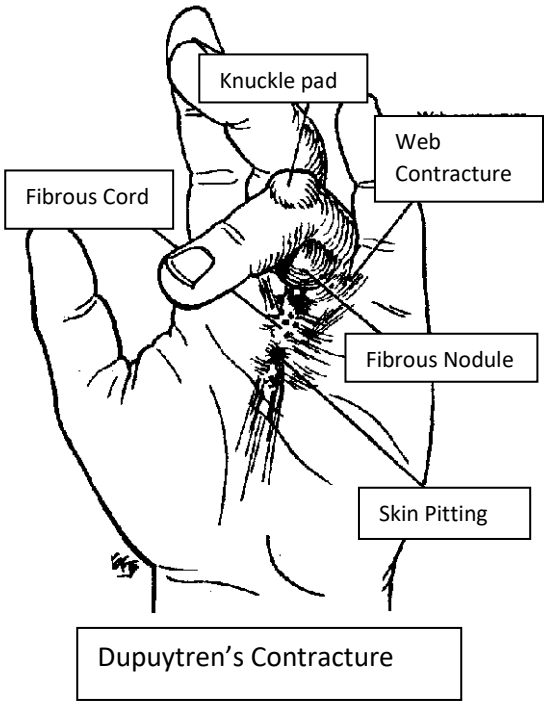
Dupuytren's disease is an abnormal thickening of the palmar fascia, which is a sheet of fibrous tissue in the palm. Later in life, the fascia may thicken and form cords of gristle which cause the fingers to bend down into the palm. There may also be growth into the skin itself, causing nodules and pits to form.

## What causes it?

Dupuytren's disease mostly affects people of Anglosaxon descent. It tends to run in families. It usually begins in middle age. It may be worse if the disease starts at a young age (Dupuytren diathesis) with multiple digits affected in both hands and even feet, or when associated with epilepsy medication, excess alcohol usage or liver disease. Dupuytren's disease is not curable and is a progressive and recurrent condition over time.

## Treatment

This is a painless condition, but it tends to worsen with age and may affect many fingers and both hands. There is no permanent cure for Dupuytren's disease. For small Dupuytren bands, a limited release or an injection of a collagenase (Xiaflex) can soften the diseased tissue and improve the contracture. Surgery is usually required if the fingers have bent down into the palm and get in the way. Surgery removes the thickened abnormal fascia (fasciectomy) but alone may not fully correct the contracture. Surgical techniques such as "Z plasty" (to lengthen the skin incision), joint releases, or skin grafts (dermatofasciectomy) may be required. The digital nerves which supply feeling to the fingertip may be involved with the Dupuytren's disease, and radical surgery may damage these nerves. Poor skin healing and infection and finger stiffness may also occur.




## After Surgery

Keep your hand elevated in a sling to prevent swelling. A plaster splint may be necessary for the first 2 weeks until the stitches come out. Hand therapy will be required where you will be shown stretching exercises and how to massage the scar. Some scars are quite lumpy after Dupuytren surgery but slowly improve with silicon pads and regular application of rich Vitamin E or BioOil cream. When severe contractures have been treated, use of a plastic extension splint at night and ongoing hand therapy are usually necessary for several months after surgery.

Dupuytren's disease may return in the same place or at another site some years later, and further surgery may be required.

# Lateral Epicondylitis

## What is it?

Lateral epicondylitis, commonly known as “tennis elbow", is inflammation of the tendons in the upper forearm which straighten the fingers and extend the wrist. Pain may be felt where these tendon fibres attach to the bone on the outside of the elbow, or along the muscles in the forearm. Pain is usually more noticeable during stressful and repetitive use of the arm. In severe cases, grasping or lifting with the palm down may be difficult. Because people who play tennis or other racquet sports sometimes develop this problem from improper playing technique, it has become known as "tennis elbow”.

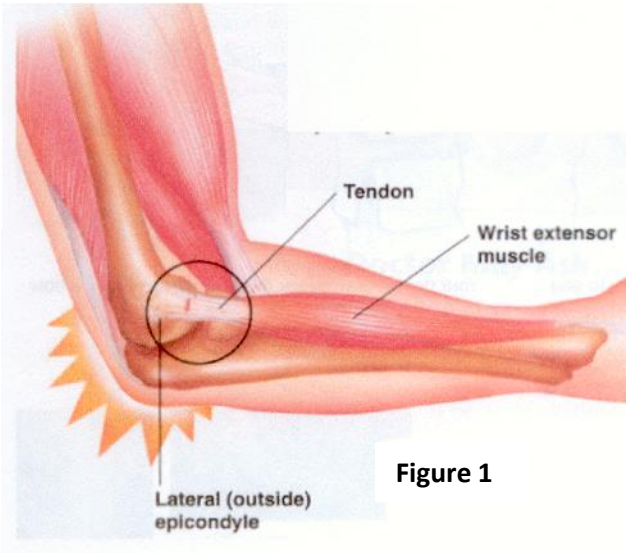



**Figure 1**

## Signs and symptoms

The area of most discomfort is usually found over the bony prominence on the outer side of the elbow known as the lateral epicondyle ***(Fig 1).*** There may be tenderness in the nearby muscles. There may also be some nerve compression (radial tunnel syndrome) which causes weakness on extending the wrist and fingers. A scan may show damage to the extensor tendon where it attaches to bone.

## Treatment

The goal of treatment is to relieve the pain. Treatment includes restricting the activities causing pain such as lifting with the palm down. Also wearing a forearm band, anti-inflammatory medication, extensor muscle stretching exercises, physiotherapy, cortisone injections and image guided platelet rich plasma injections are helpful. Most patients make progress over several months of non-operative treatment.

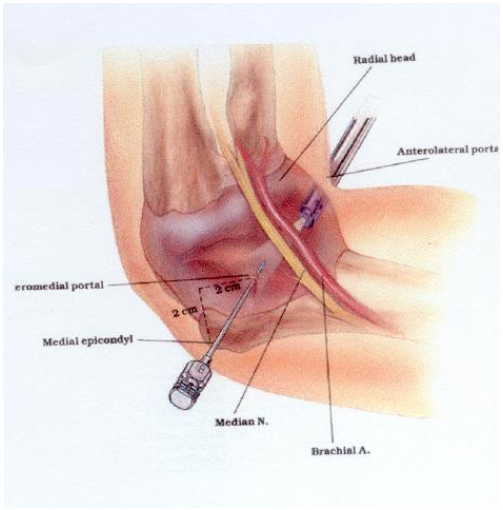
Extensor Muscle Stretch

A small proportion of patients require surgery. A general anaesthetic is required but surgery is done as a “daystay”. The damaged tendon is cleaned up where it attaches to bone, and "fasiotomies" are made to lengthen the muscles and decrease the pulling force on the damaged tendon. After surgery, most patients improve steadily and gradually resume normal activity. If the tendon damage is longstanding and extensive, some patients will still have a degree of pain with heavy activity.

# Elbow Arthroscopy

## What is it?

Elbow arthroscopy is "keyhole" surgery of the elbow joint. Arthroscopy of the elbow is less common than the knee and shoulder arthroscopy, as it is a relatively smaller and more complex joint and smaller instruments are required.




## When is it required?

Elbow arthroscopy is used to treat a number of conditions, including removal of loose bodies, debridement of arthritis or synovial swellings, removal of bone spurs and to assist in the treatment of certain fractures. Arthroscopic surgery can improve elbow symptoms, and due to the keyhole nature of surgery, recovery is faster.

## How is elbow arthroscopy performed?

A general anaesthetic is required. The elbow joint is inspected via several viewing "portals" which are puncture incisions on the inner, outer and posterior aspect of the joint. Instruments are also passed via these portals to surgically treat any abnormalities.

Many important structures cross in front of the elbow joint, including tendons, nerves and blood vessels and there is a very small possibility of damage to these structures during elbow arthroscopic surgery. Such complications are very rare. Likewise infection of these puncture incisions may occur but are also very uncommon.

## What I can expect after elbow arthroscopy

The post-operative programme depends on the underlying condition being treated. Elbow fractures may need plaster splint immobilisation. Usually only an elbow bandage is required with elevation of the arm on pillows or in a sling until the swelling subsides. Gentle movements of the elbow, fingers and wrist are encouraged to minimize stiffness. Please keep your bandage clean and dry until Mr Wang reviews you in about 10-14 days after surgery.

Elbow stiffness may occur and some physiotherapy may be necessary depending on your progress. With regards to work, very light activity can begin with the operated arm one week after surgery. Heavy activity should wait until at least the 4-6 week stage.

# Post-Operative Instructions for Hand & Elbow Surgery

1. Please elevate your hand and forearm on pillows to reduce swelling.

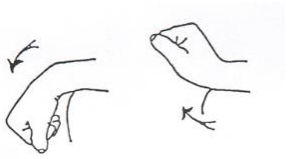
2. Keep your bandage or plaster cast intact, dry and clean.
Use a plastic bag to protect your cast in the shower.

3. If a sling was provided, please wear if when you are up and about.

4. If your bandage or plaster is too tight you may notice increasing and severe pain, and finger swelling, dusky colouration, or increasing numbness in your fingers. If this occurs, continue to elevate your hand, cut through the bandage with scissors and loosen the plaster splint, and notify the hospital or Dr Wang if things do not improve.

5. Gentle exercises are helpful, to reduce stiffness. Do these exercises slowly, to the point of discomfort, not painful. Do two exercise sessions daily.

These exercises are:



(a) Gently clench and unclench your hand five times.

(b) Gently reach your hand above your head as if you are trying to touch the ceiling.

(c) If you are NOT in a plaster cast: Gently flex and extend your wrist five times.

(d) Keep your bent elbows tucked into your side. Turn your forearm only so that your palms faces upwards, then turn slowly so the palm face downwards.

(e) Touching the tip of the thumb to each fingertip in turn, making an "O" sign.

(f) Within the confines of your elbow bandage, flex and extend your elbow gently.

In the first day or two after surgery – performing some general exercises will aid recovery. These include cough and deep breathing (to keep your chest healthy) and frequent short walks (to prevent deep vein thrombosis).

6. Pain Management: A prescription for pain tablets will be provided by the hospital on discharge. Generally take Paracetamol regularly: 1 to 2 (500mg) tablets three times a day will reduce the need for stronger mediation. For breakthrough pain eg. after exercise or at bedtime, take Oxycodone (tradename Endone or Oxynorm) 1 to 2 (5mg) tablets twice but no more than three times a day. This is a narcotic prescription, Oxycodone should be taken sparingly. It may make you lightheaded and nauseous and should not be combined with alcohol or sleeping pills. Anti-inflammatory medication (eg Naprosyn, Mobic, Voltaran etc) can be taken as well if necessary.

7. With regards to work, generally only very light activity with the operated hand is appropriate and this could commence at 14 days after surgery. You should not drive a motor vehicle or operate machinery until after your post-operative appointment.