

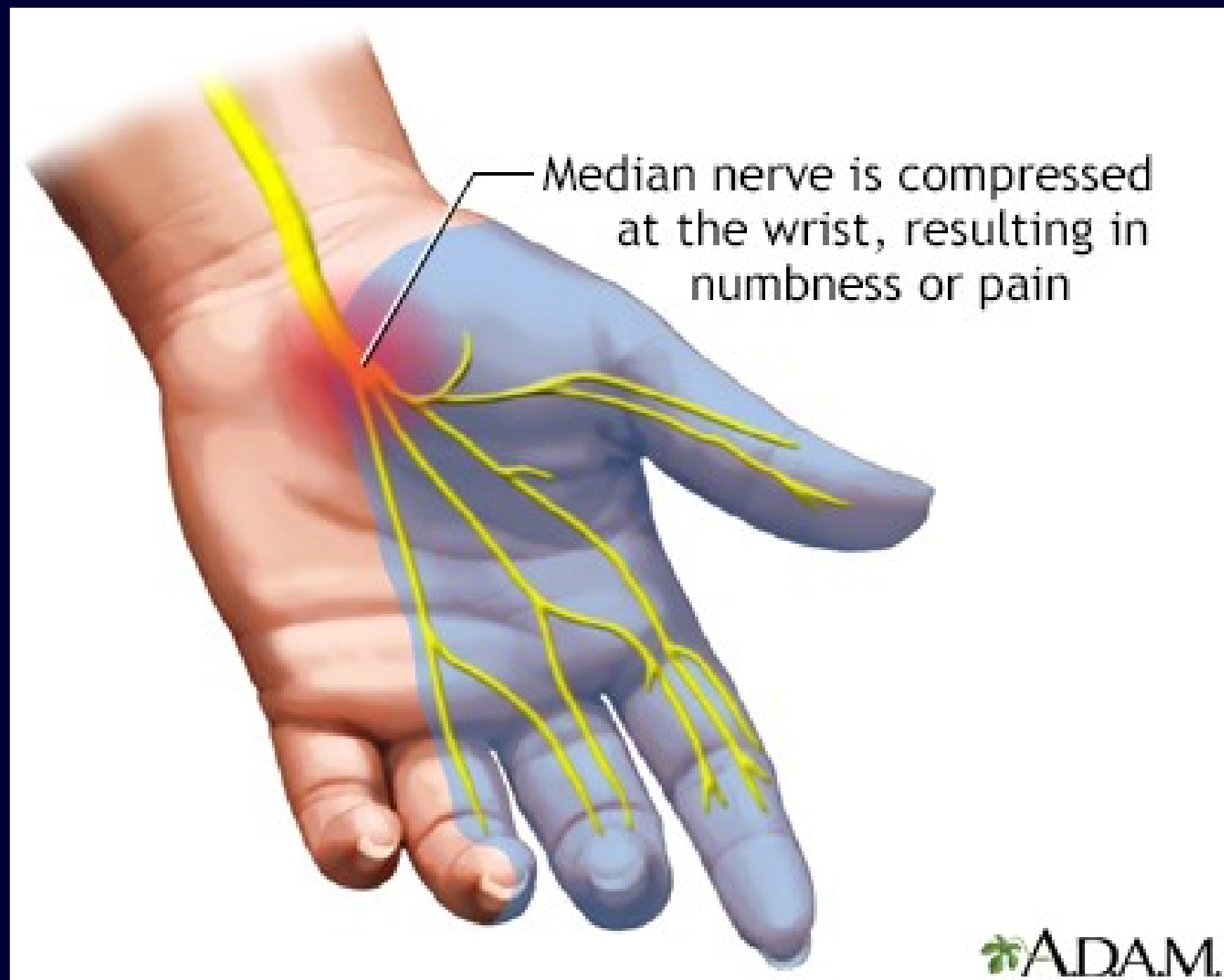


Workplace Injuries Hand to Elbow

DR. SCHRAMM, OSMC

Carpal Tunnel Syndrome
Cubital Tunnel Syndrome
Radial Tunnel Syndrome
Proximal Median Nerve Compression

Compressive Neuropathies



SYMPTOMS

- NUMBNESS in Thumb, Index, Middle Fingers
- PAIN in wrist
- SWELLING
- WEAKNESS
- NIGHTTIME AWAKENING

Carpal Tunnel Symptoms



CAUSES

- Repetitive tasks
- Typing, Gripping, etc.
- Takes time (3 months etc)

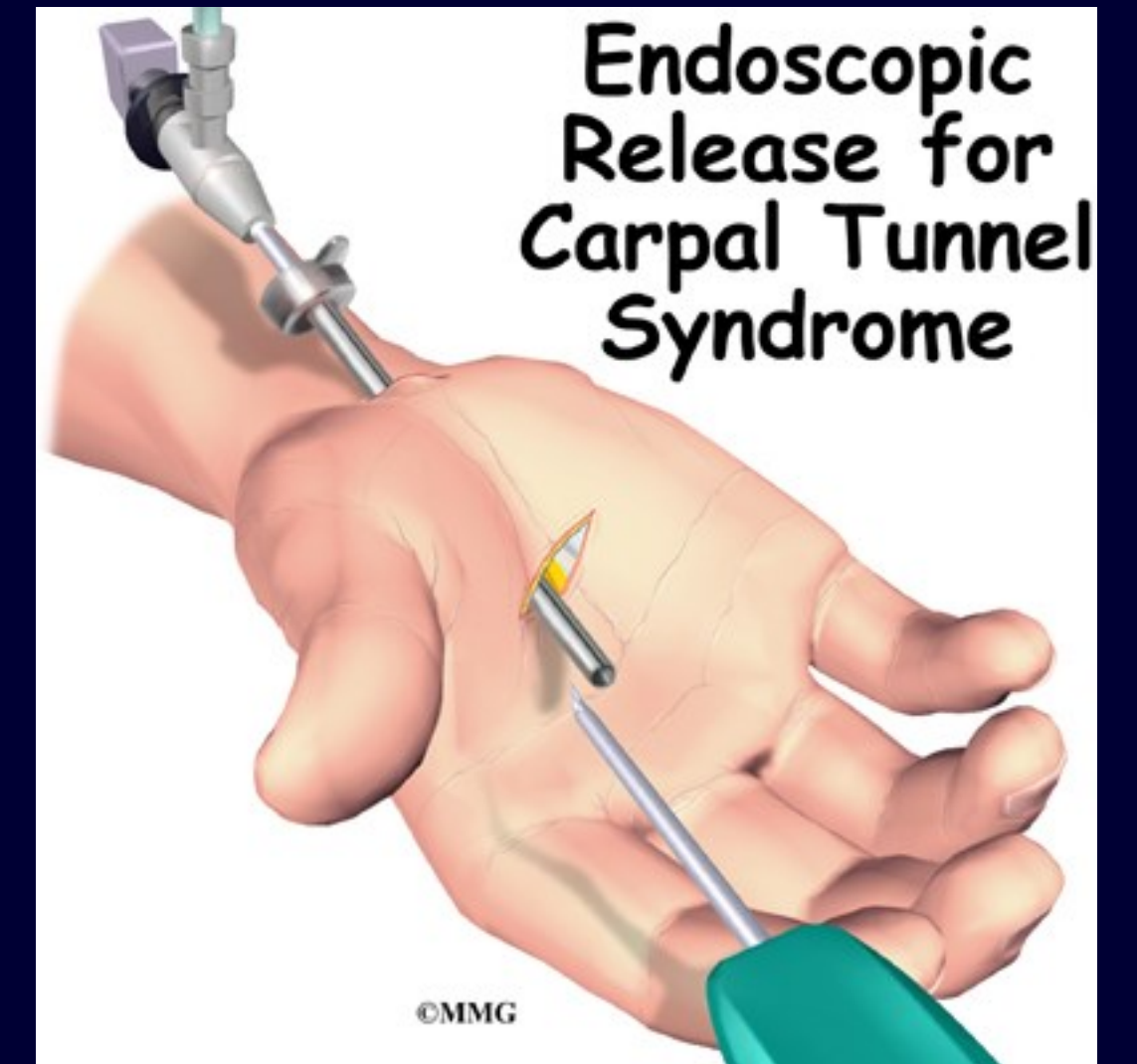
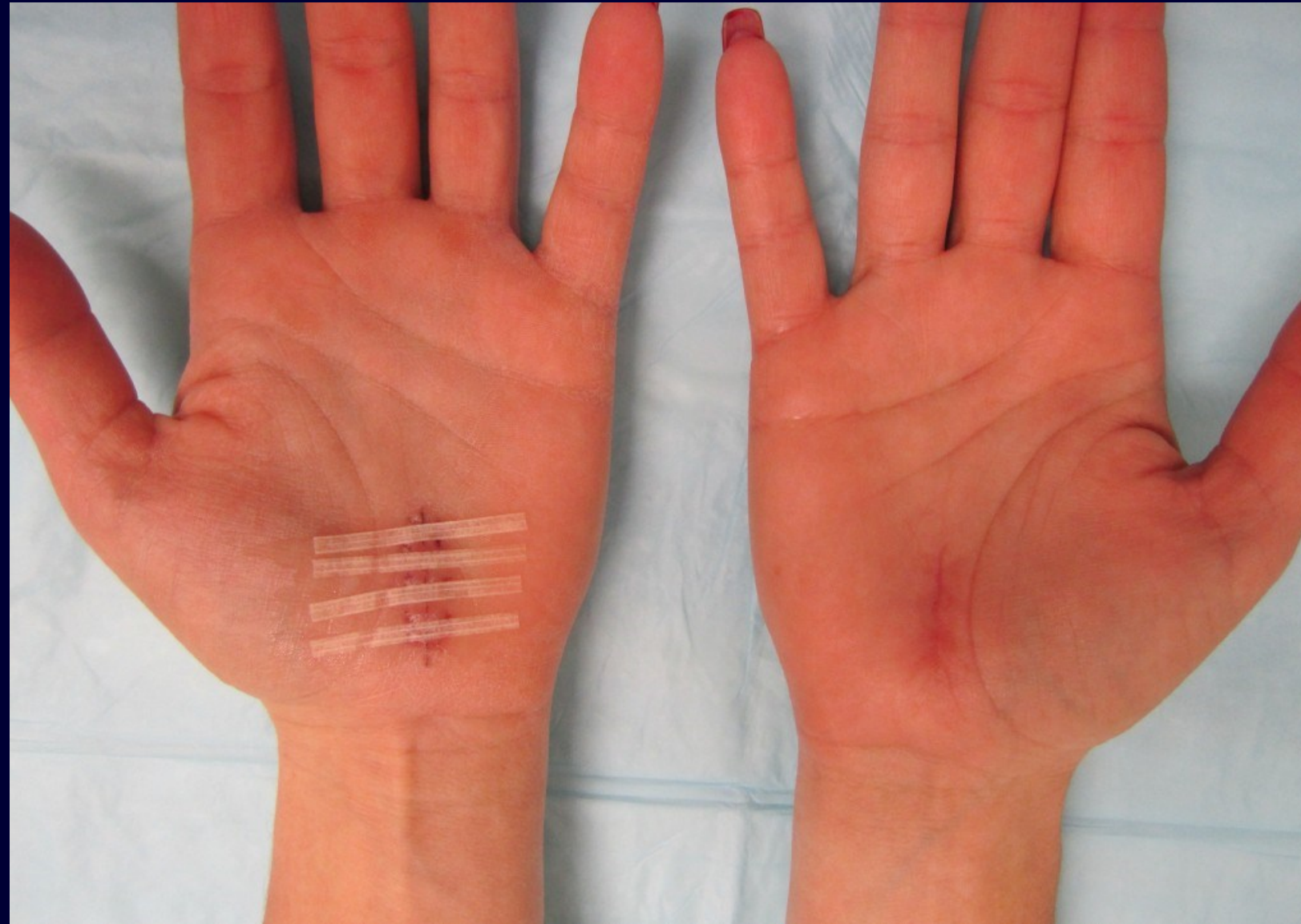
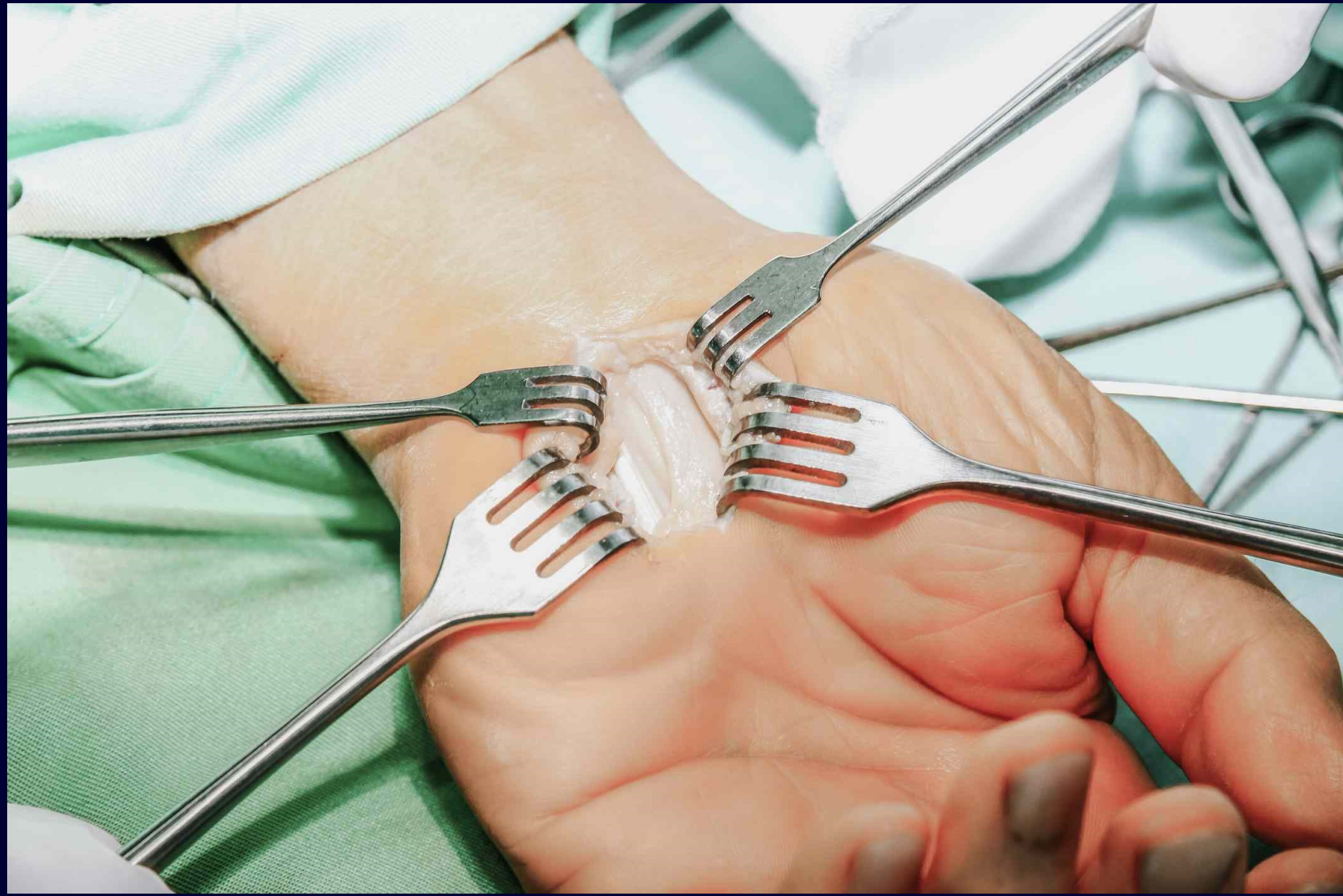
PREVENTION

- Ergonomical work station
- Frequent breaks
- Stretching

Carpal Tunnel Syndrome



Treatments for Mild Disease



Treatment Moderate/Severe Carpal Tunnel

Time off work: 1-3 days

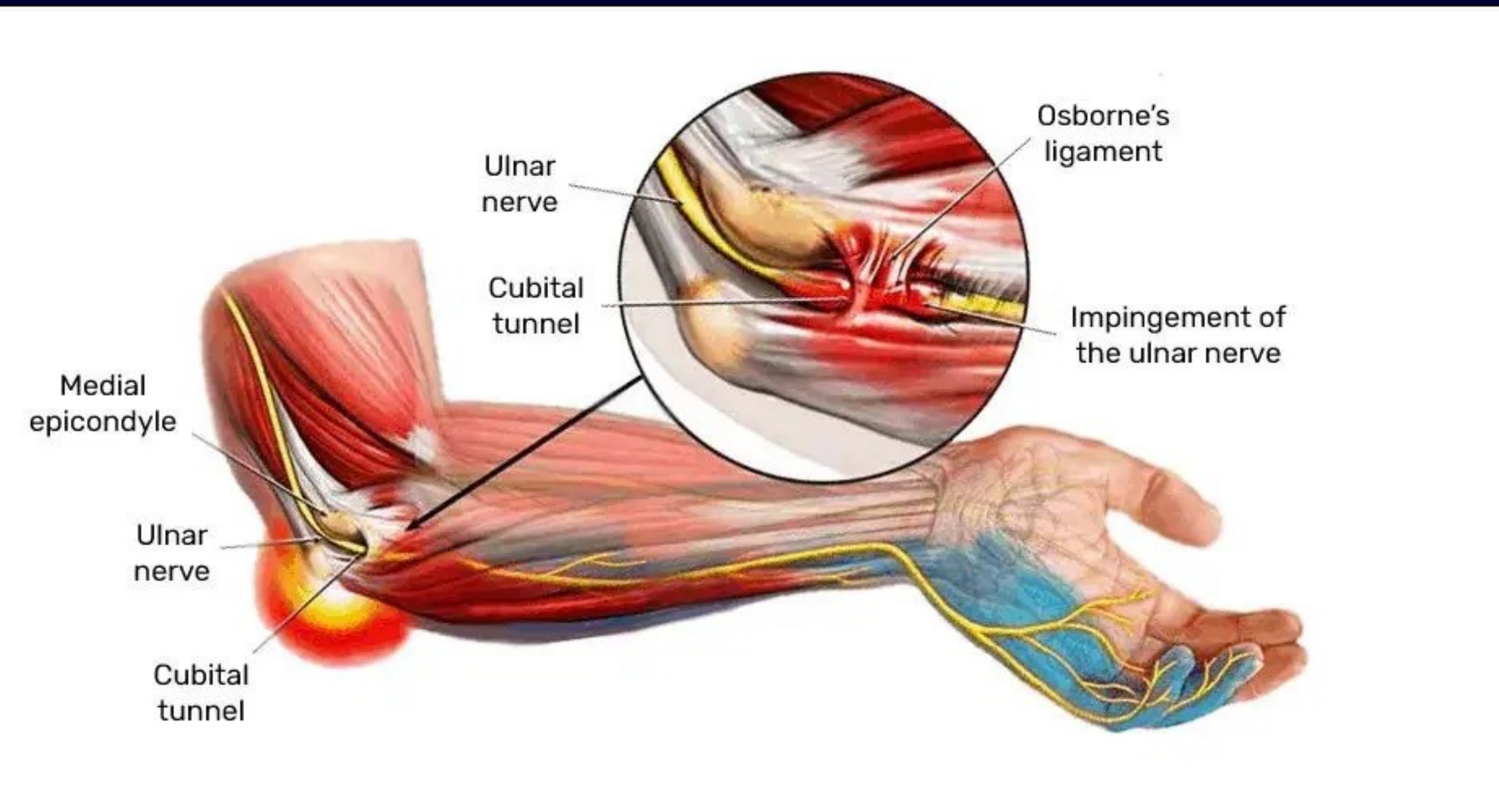
Restrictions: No use/light use (< 2 lb) for 2-6 wks

Time to MMI: 6 wks

Why does it take longer to return sometimes?

- Severe compression with weakness
- Incisional tenderness

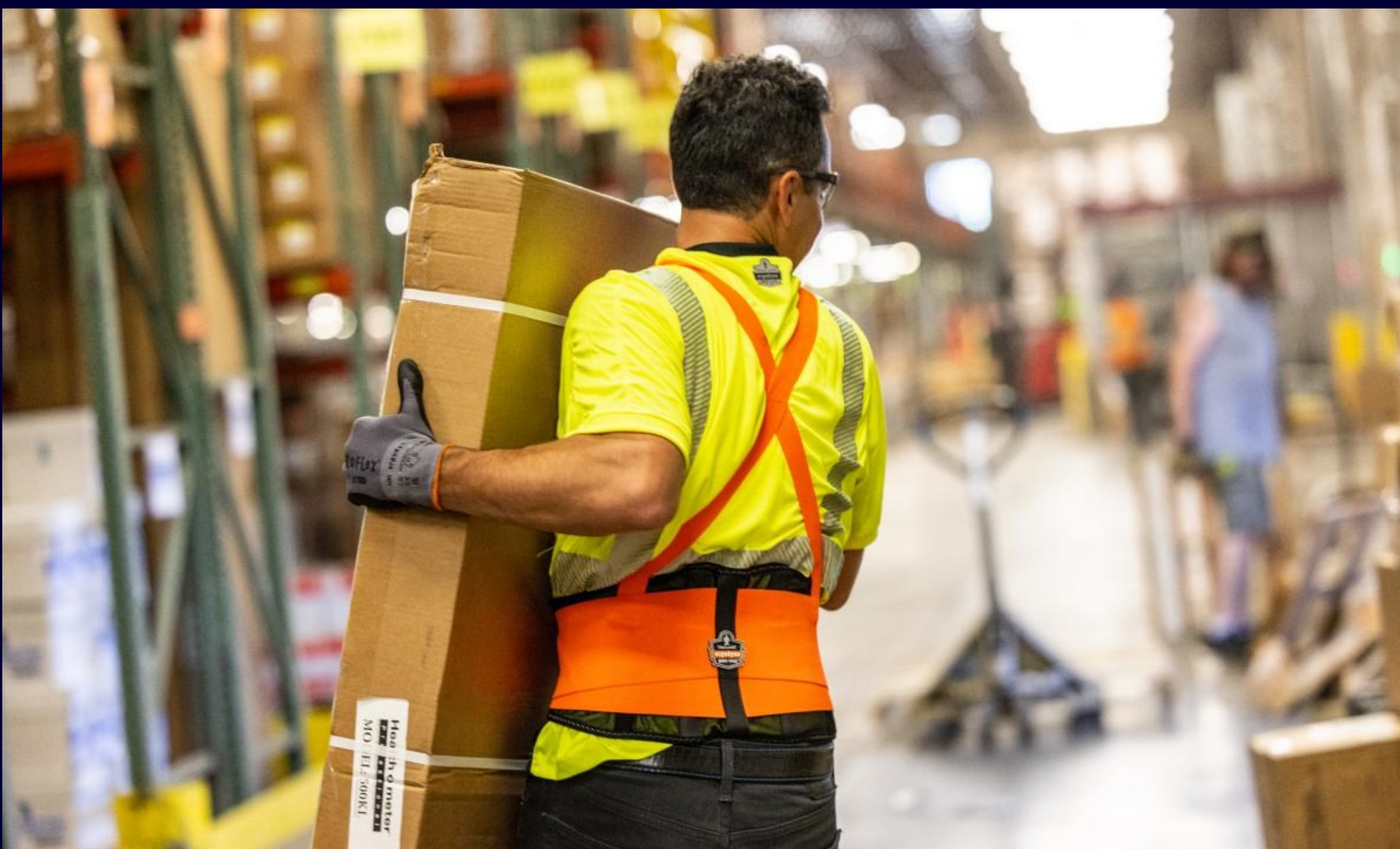
Carpal Tunnel Rehab



SYMPTOMS

- Numbness in Ring and Little Fingers
- Weakness in Grasping, Fine Motor Activities
- Forearm pain/aching

Cubital Tunnel Symptoms



CAUSES

- Repetitive tasks
- Lifting, Gripping, etc.
- Direct blow to elbow

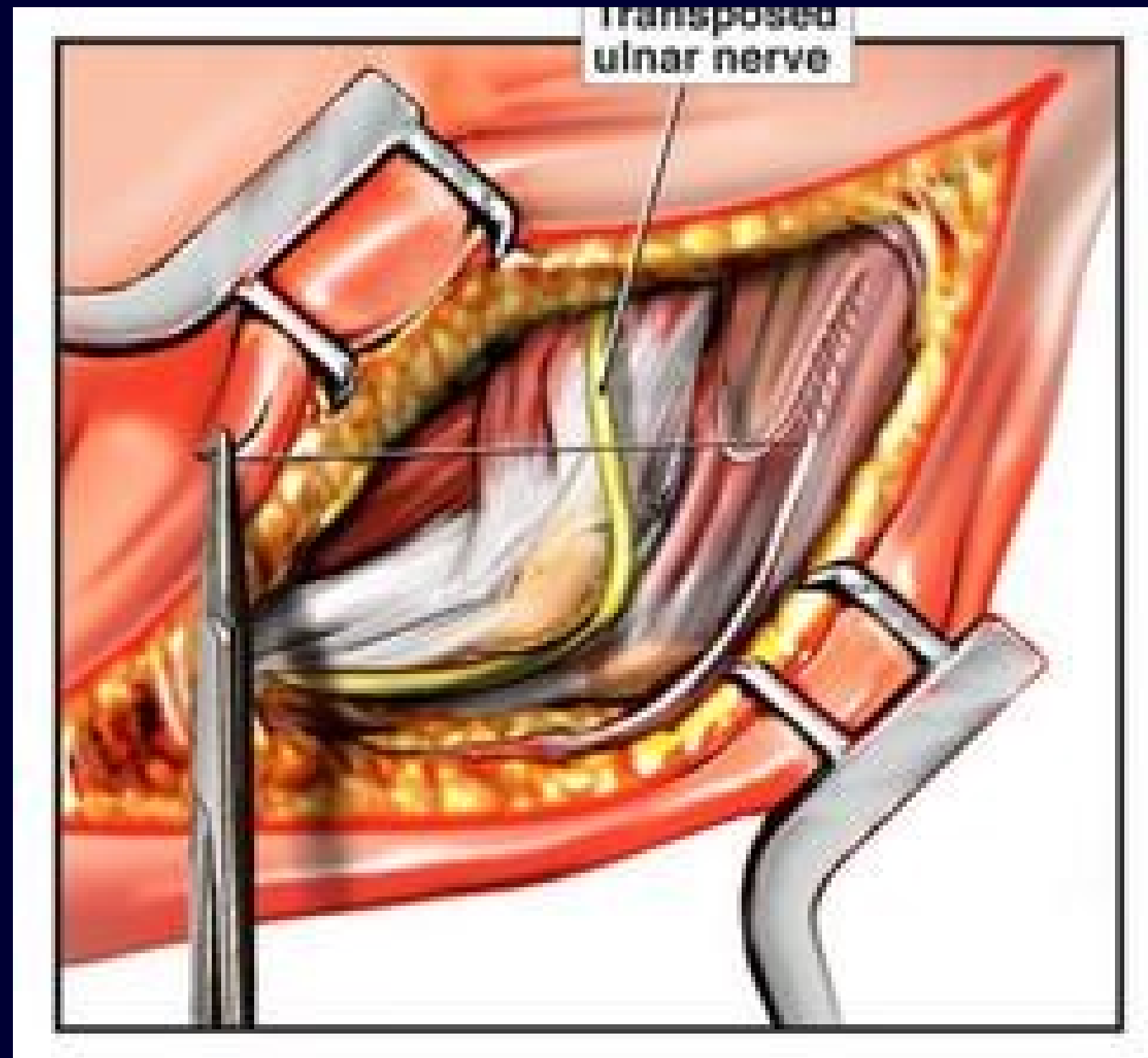
PREVENTION

- Ergonomical work station
- Frequent breaks
- Stretching

Cubital Tunnel Causes



Treatment for Mild Disease



SURGERY

- Decompress nerve
- In Situ (leave nerve in groove)
 - Less swelling, change for recurrence
- Anterior Transposition (muscle trough)
 - More swelling, slightly longer recovery

Treatment Moderate/Severe Cubital Tunnel

Time off work: 1-3 days

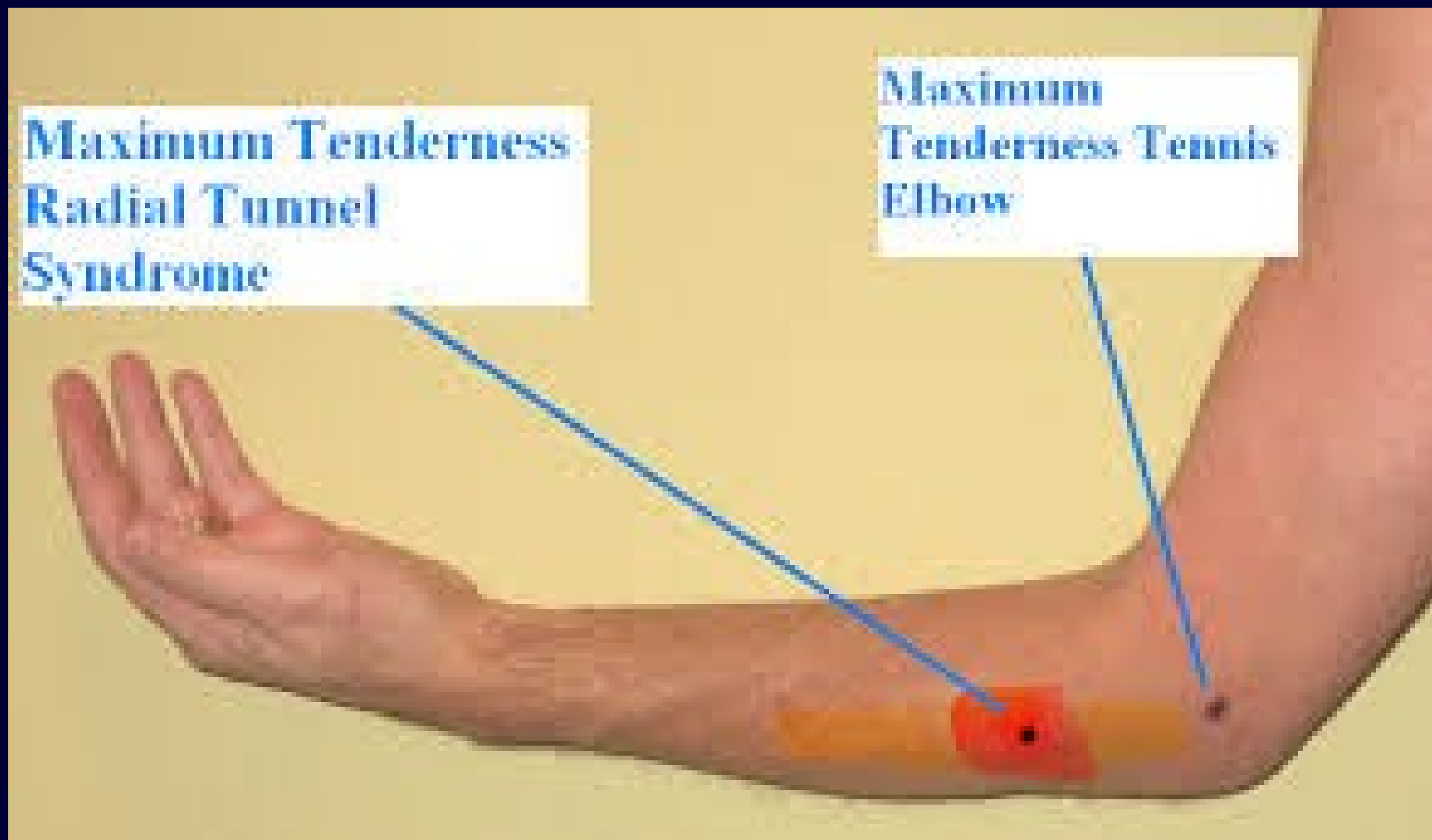
Restrictions: No use/light use (< 2 lb) for 2-6 wks

Time to MMI: 6-8 wks

Why does it take longer to return sometimes?

- Severe compression with weakness
- Therapy necessary to strengthen small hand muscles

Cubital Tunnel Rehab



SYMPTOMS

- Pain in dorsal forearm
- Weakness in wrist/finger extension

PREVENTION

- Ergonomical work station
- Frequent breaks
- Stretching

Radial Tunnel Syndrome

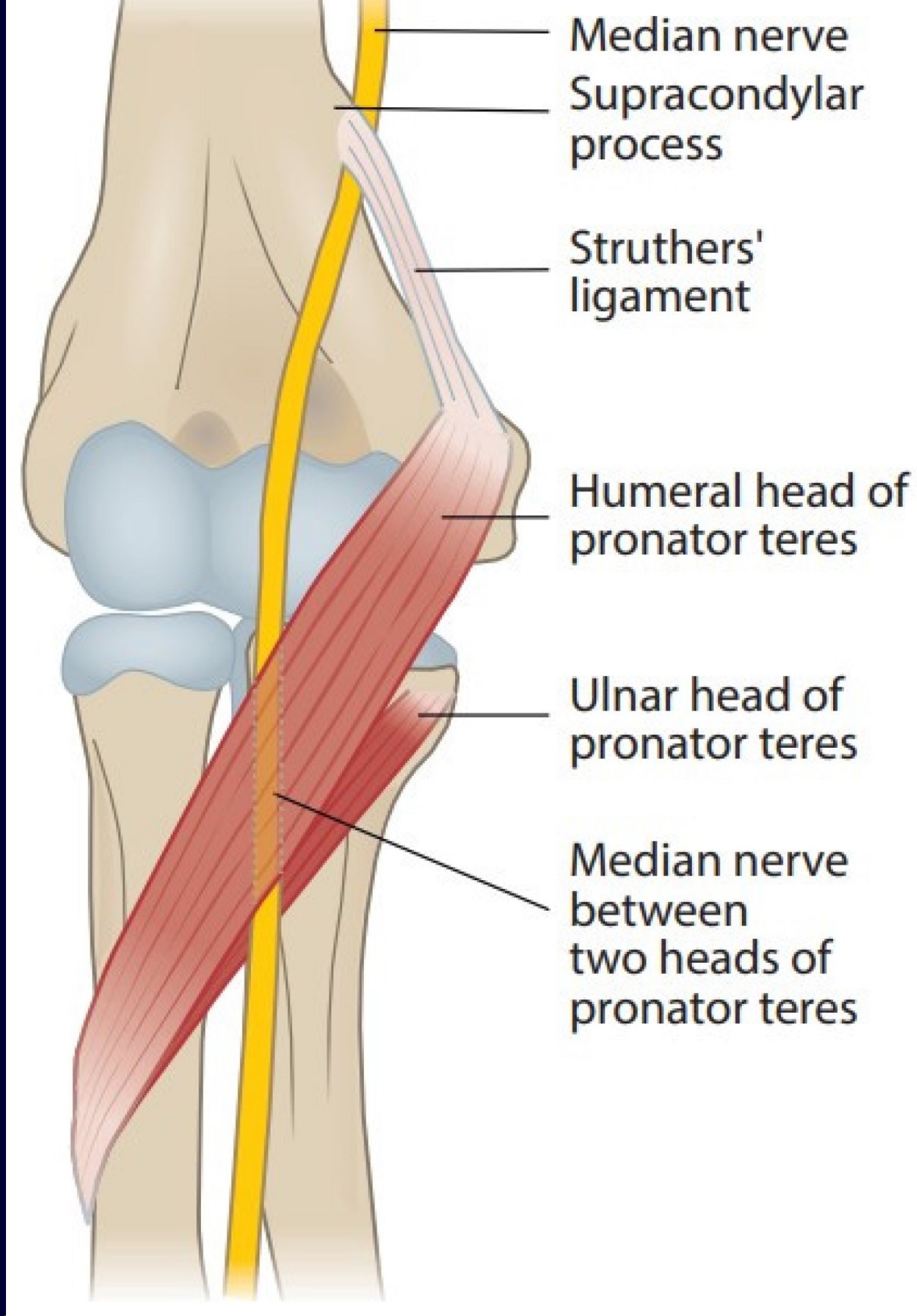


TREATMENT

- **Therapy** (almost always)
- Nerve medication (short term)
 - 3 months
- Rarely surgery

TIME TO MMI: 3 months

Radial Tunnel Treatment



RARE

Treatment

Therapy (ASTYM)

Surgery rarely indicated

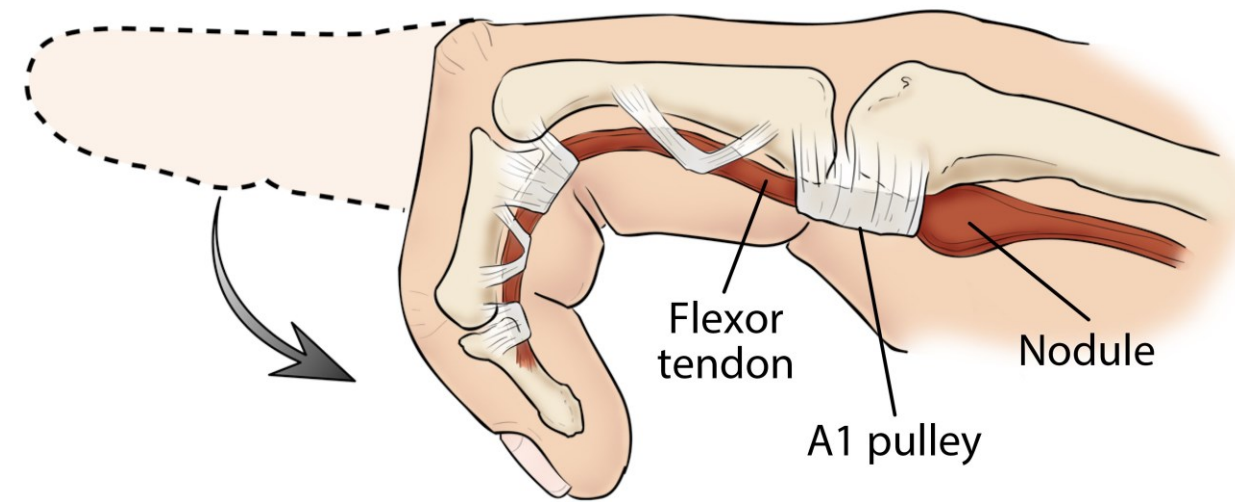
TIME TO MMI: 3 MONTHS

Proximal Median Nerve Compression

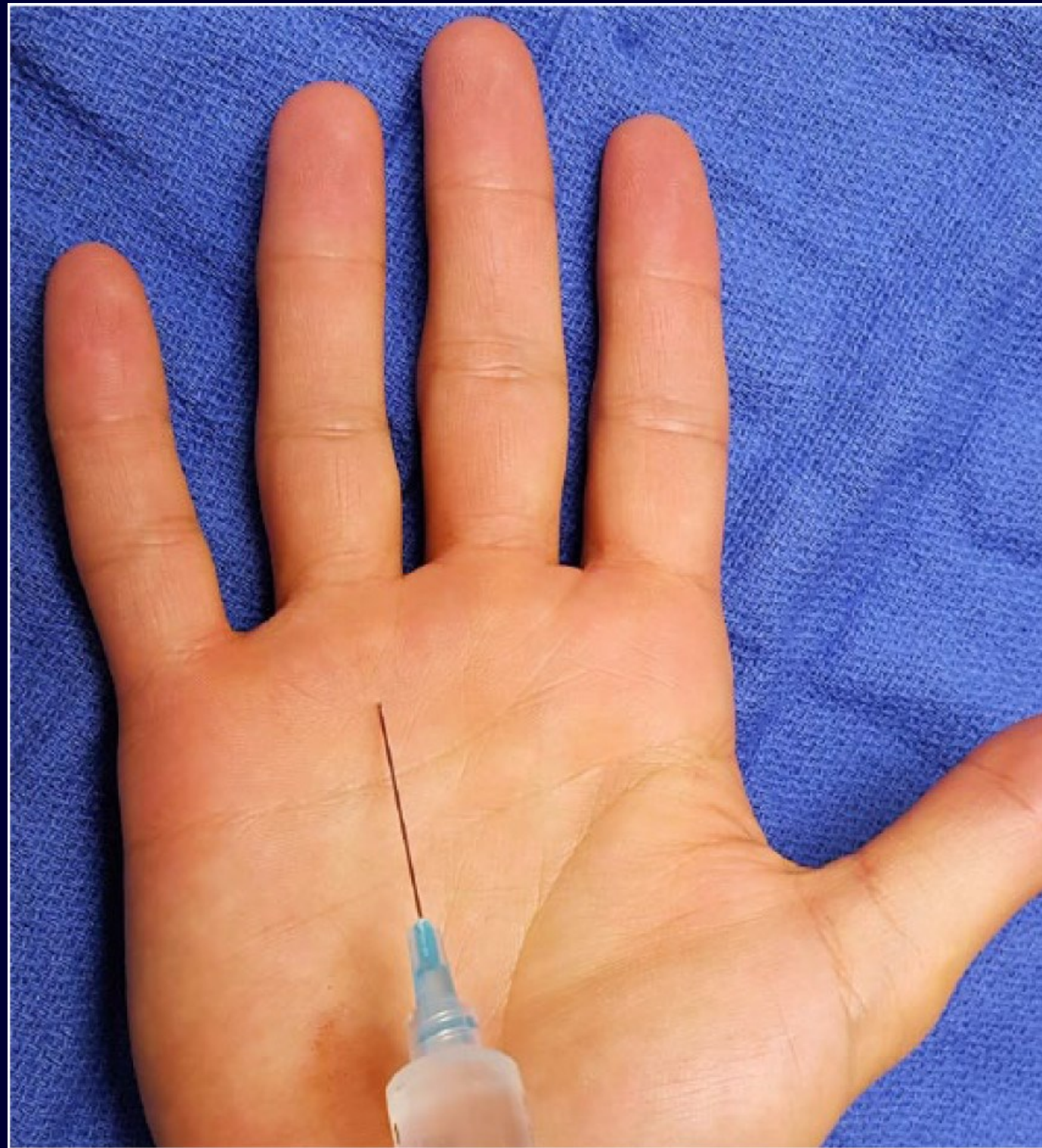


CAUSES

- Repetitive tasks
- Pulling, Gripping, etc.
- Crush Injury/Trauma to palm of hand



Trigger Fingers

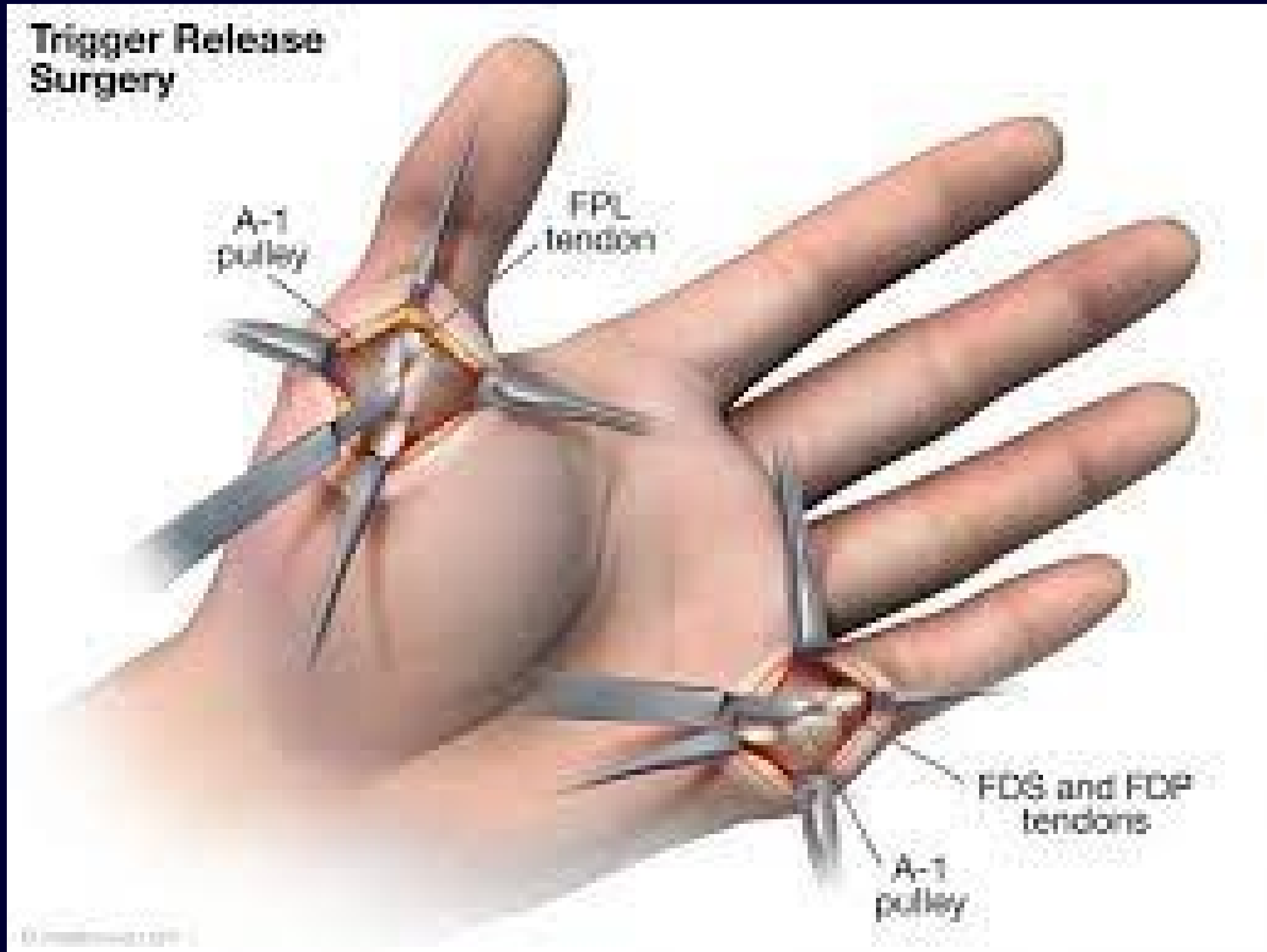


INITIAL TREATMENT

- Injection steroid in tendon sheath
- Success rate 50%
- Repeat injection x 1 possible
- Control Swelling
- Less repetitive grasping

Trigger Finger Treatment

Trigger Release Surgery



SURGERY

- Release A1 pulley

THERAPY

- Necessary to improve tendon gliding
- Often swelling and stiffness
- More than 1 finger, crush injury, etc.

Trigger Finger Treatment

Time off work: 1-3 days

Restrictions: No use/light use (< 2 lb) for 2-6 wks

Time to MMI: 6-8 wks

Why does it take longer to return sometimes?

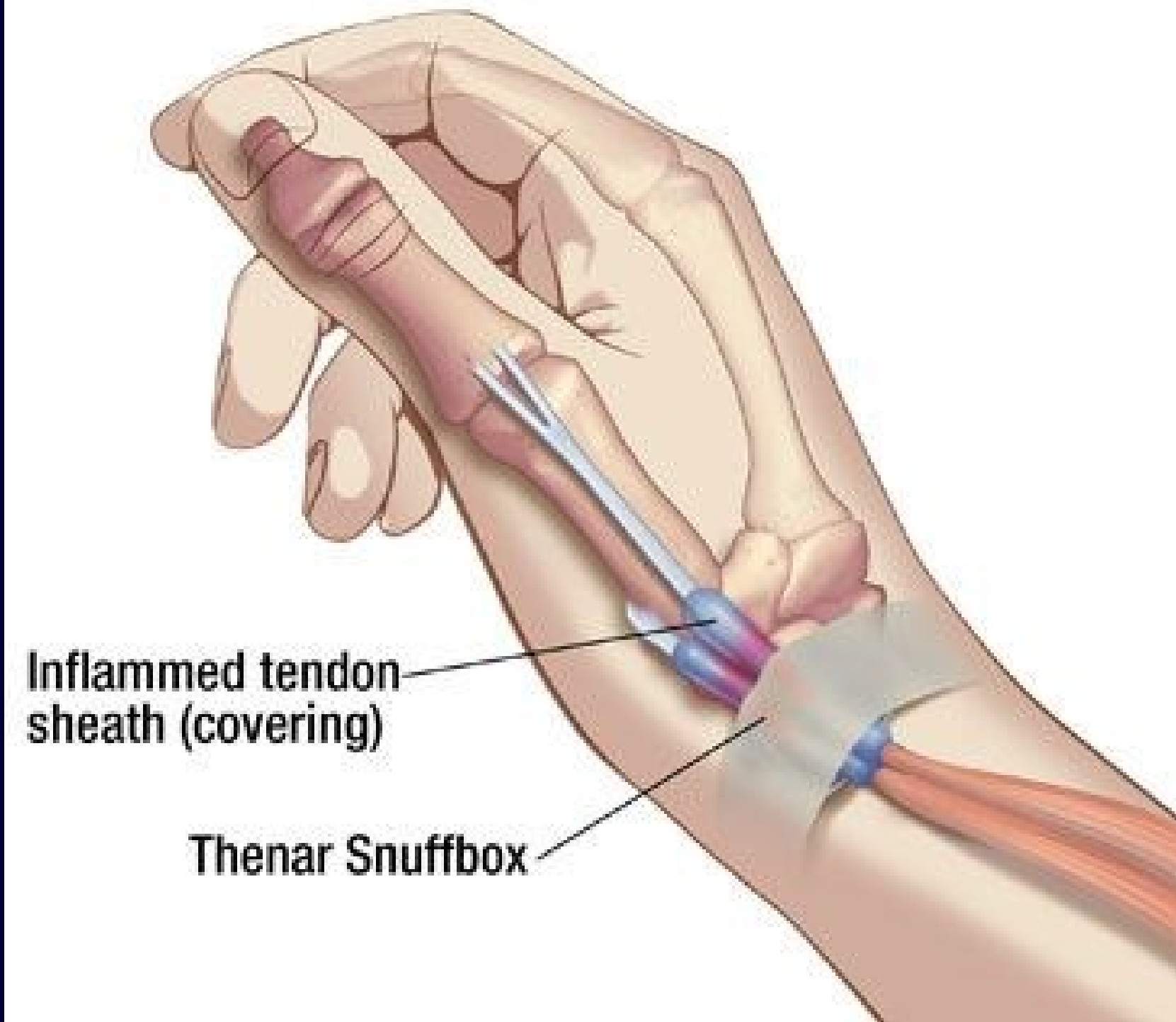
- Multiple fingers
- Crush injury
- Flexion contracture from chronic flexion deformity
- Scarring/Palmar fibromatosis

Trigger Finger Rehab

DeQuervain's Tenosynovitis
Lateral Epicondylitis (Tennis Elbow)
Medial Epicondylitis (Golfer's Elbow)
FCR, ECU, ECRL/B Tendonitis

Tendonitis Wrist to Elbow

De Quervain's Tenosynovitis



SYMPTOMS

- PAIN in dorsal radial wrist
- Worsened with radial deviation

CAUSES

- Repetitive lifting
- Repetitive grasping
- Forceful blow to wrist

DeQuervain's Tenosynovitis



INITIAL TREATMENT

- Injection steroid in tendon sheath
- Success rate 50%
- Not recommend repeat injections
- Splinting
- Activity modification (no wrist bending)

Treatment DeQuervain's Tenosynovitis



SURGERY

- Release “roof” of tunnel
THERAPY

- Regaining motion**
- Helping tendons to move normally**
- Regain strength**

DeQuervain's Surgery

Time off work: 1-3 days

Restrictions: No use/light use (< 2 lb) for 2-6 wks

Time to MMI: 6-8 wks

Why does it take longer to return sometimes?

- Scarring
- Nerve irritation (might need nerve medication for 6-8 wks)

DeQuervain's Tenosynovitis Rehab



SYMPTOMS

- Pain over outside of elbow (laterally)
- Pain with extending elbow, lifting wrist

PHYSIOLOGY

- Micro tearing over extensor origin from repetitive grasping
- Tendon rupture from forceful lifting/blow to elbow

Lateral Epicondylitis



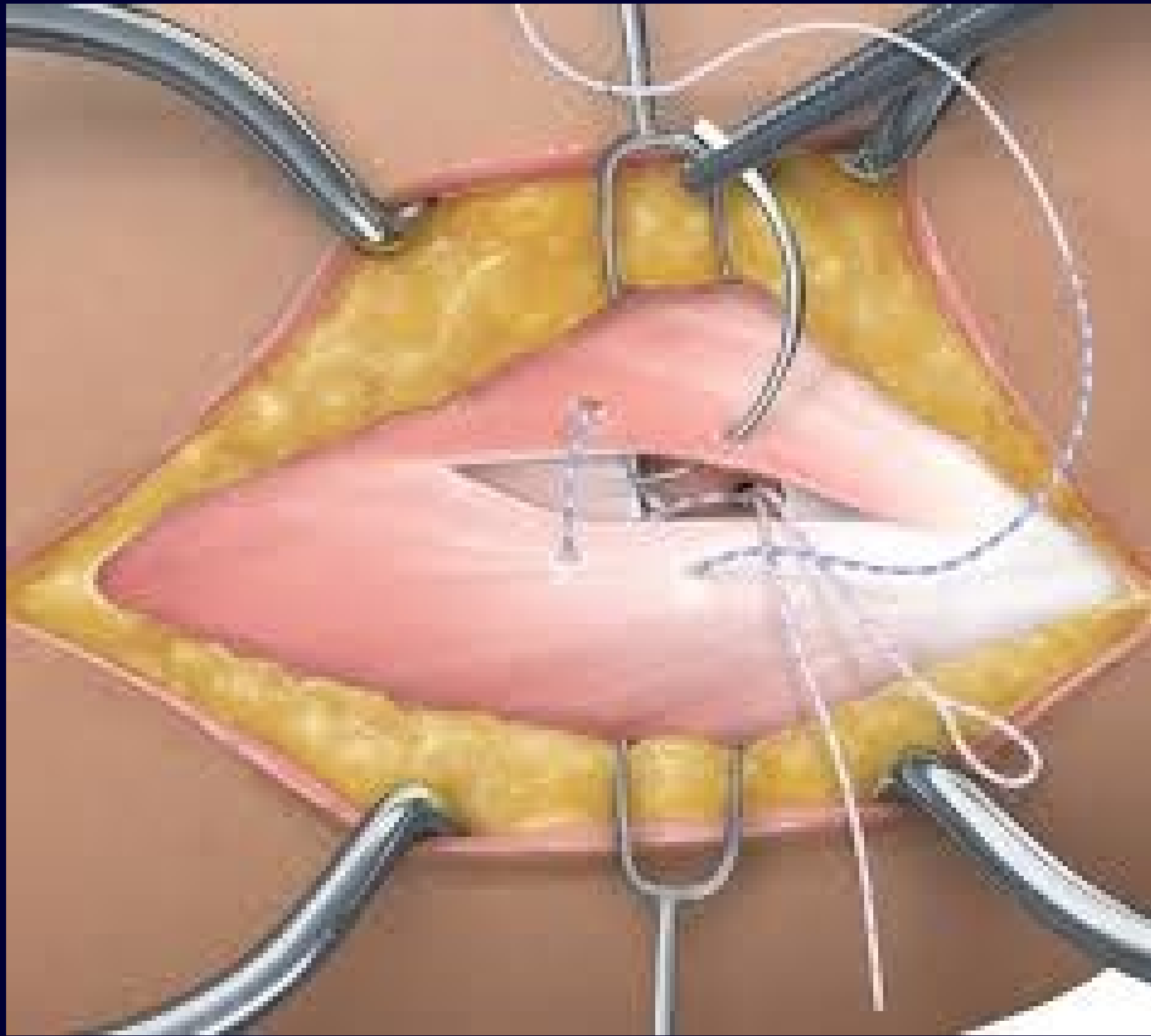
THERAPY

- Ultrasound, Iontophoresis, Stretching
- ASTYM/SASTYM (deep massage)

BRACING

- Band bracing (tennis elbow brace)
- Wrist splinting

Lateral Epicondylitis Treatment



SURGERY

- Open debridement
- Arthroscopic debridement
- Open debridement with repair of tendon
- *Surgery of choice for repeat surgery*

Lateral Epicondylitis Surgery

Time off work: 1 week

Restrictions: No use/Wear Splint

Therapy: Essential for success

Time to MMI: 3 months

Why does it take longer to return sometimes?

- Need for heavy lifting (need long time in therapy for strengthening)

Lateral Epicondylitis Rehab



SYMPTOMS

- Pain over outside of elbow (medially)
- Pain with forearm pronation



Medial Epicondylitis



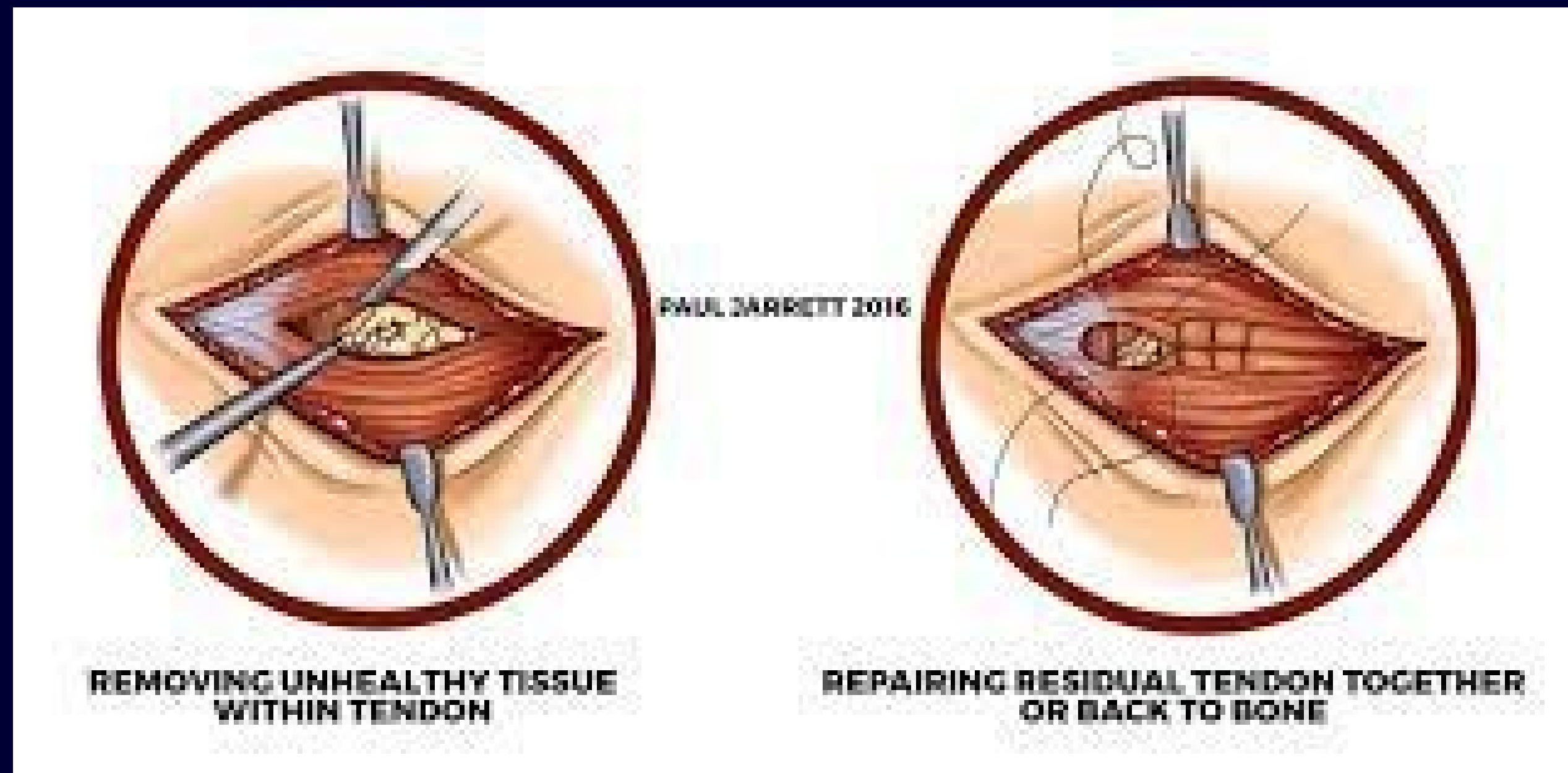
THERAPY

- Ultrasound, Iontophoresis, Stretching
- ASTYM/SASTYM (deep massage)

BRACING

- Band bracing
- Wrist splinting
- Compression sleeve

Medial Epicondylitis Treatment



SURGERY

- Rarely needed
- Debridement and repair of tendon

Medial Epicondylitis Surgery

Time off work: 1 week

Restrictions: No use/Wear Splint

Therapy: Essential for success

Time to MMI: 3 months

Why does it take longer to return sometimes?

- Need for heavy lifting (need long time in therapy for strengthening)

Medial Epicondylitis Rehab



Proximal Phalanx



Middle Phalanx



Distal Phalanx

Finger Fractures/Dislocations

Proximal Phalanx

- ORIF vs. Buddy Tape
- Early Motion
- Therapy Early
- Will have loss of motion



Finger Fractures/Dislocations

Middle Phalanx

- ORIF vs. Splinting
- Guarded motion
- Therapy
- Will have loss of motion



Finger Fractures/Dislocations

Distal Phalanx

- Usually Splint
- Occasional ORIF
- Nail deformities



Finger Fractures/Dislocations

Time off work: 1 day distal, 3-5 days middle/proximal

Restrictions: No use, Wear splint/buddy tape

Therapy: Essential for regaining motion

Time to MMI: 6-8 wks distal, 3 months middle/proximal

PPI: Based on fracture, loss of motion, soft tissue loss, sensation loss

Finger Fractures/Dislocations

Metacarpal Fractures

Scaphoid Fractures

Carpal Fractures

Dislocations

Hand Fractures



Transverse



Boxer's/Distal



Oblique

Hand Fractures



ORIF transverse fractures



Buddy Tape stable fractures

Hand Fractures

Time off work: 1 day stable, 1 week unstable requiring ORIF

Restrictions: No use, Wear splint/buddy tape

Therapy: Essential for regaining motion

Time to MMI: 3 months

PPI: Anticipate loss of motion

Hand Fractures



Distal pole



Middle/waist



Proximal pole

Scaphoid Fractures



Distal pole - cast



Middle - Screw



Proximal pole - Screw/PRC

Scaphoid Fracture Treatment

Time off work: 1 day distal, 1 wk middle/proximal

Restrictions: No use, Cast

Therapy: Essential for regaining motion

Time to MMI: 3 months distal, 6 months middle/proximal

PPI: Loss of motion, Nonunion

Scaphoid Fractures

Radius/Ulna Shaft

Distal Radius

Distal Ulnar

Wrist Fractures

Shaft Fractures



- Usually ORIF (10 degree angulation limit)
- Splint 6 wks
- Usually minimal PPI and 8-12 wks to full MMI

Radius/Ulna Shaft



Distal Radius - ORIF



Distal Ulna - Splint

Distal Radius vs. Distal Ulna

Time off work: 1 wk

Restrictions: No use, Splint

Therapy: Essential for regaining motion

Time to MMI: 3 months

PPI: Loss of motion

Wrist Fractures

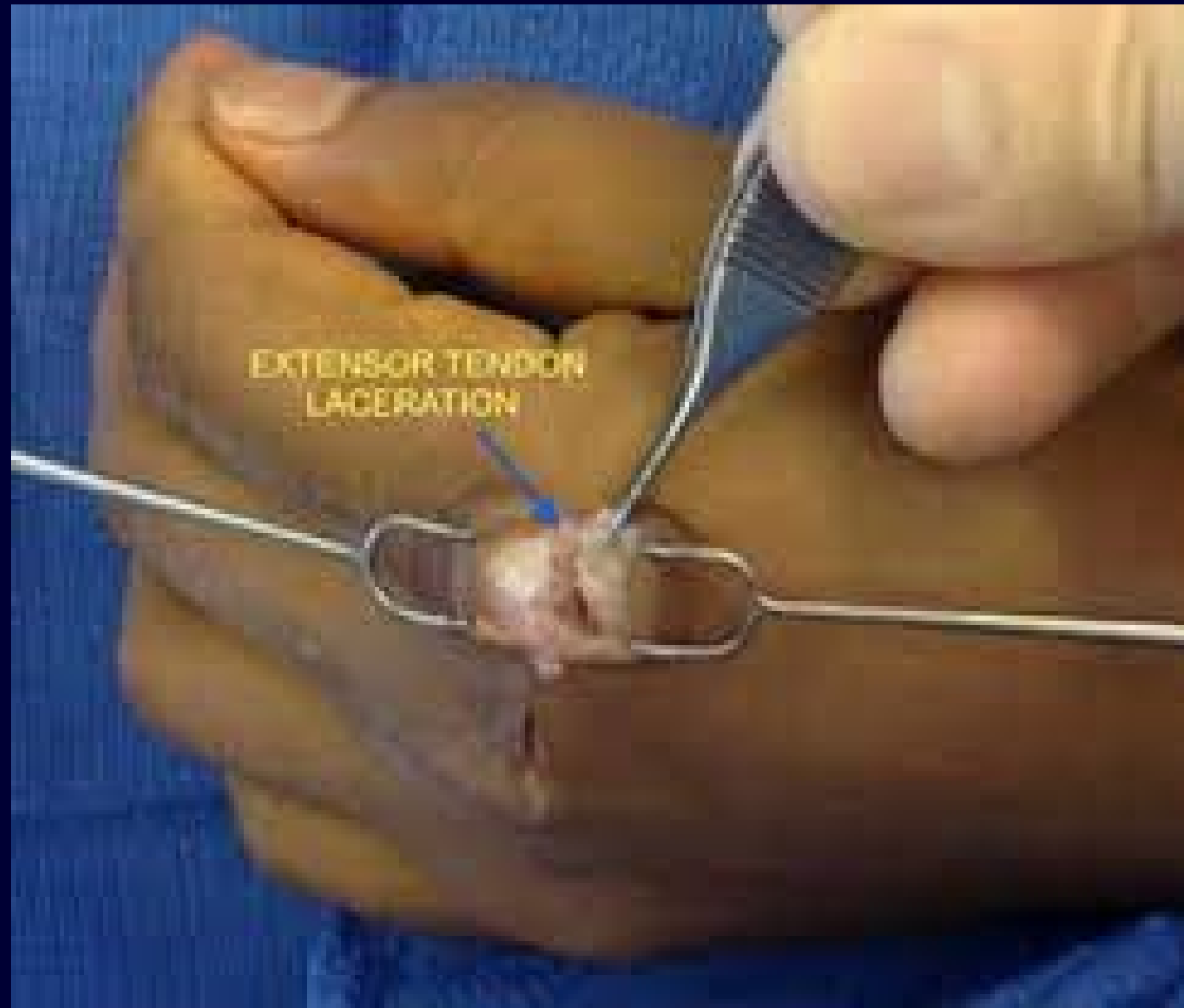


Extensor Tendon Laceration



Flexor Tendon Laceration

Tendon Lacerations Finger



Extensor Tendon Repair



Flexor Tendon Repair

Tendon Laceration Finger

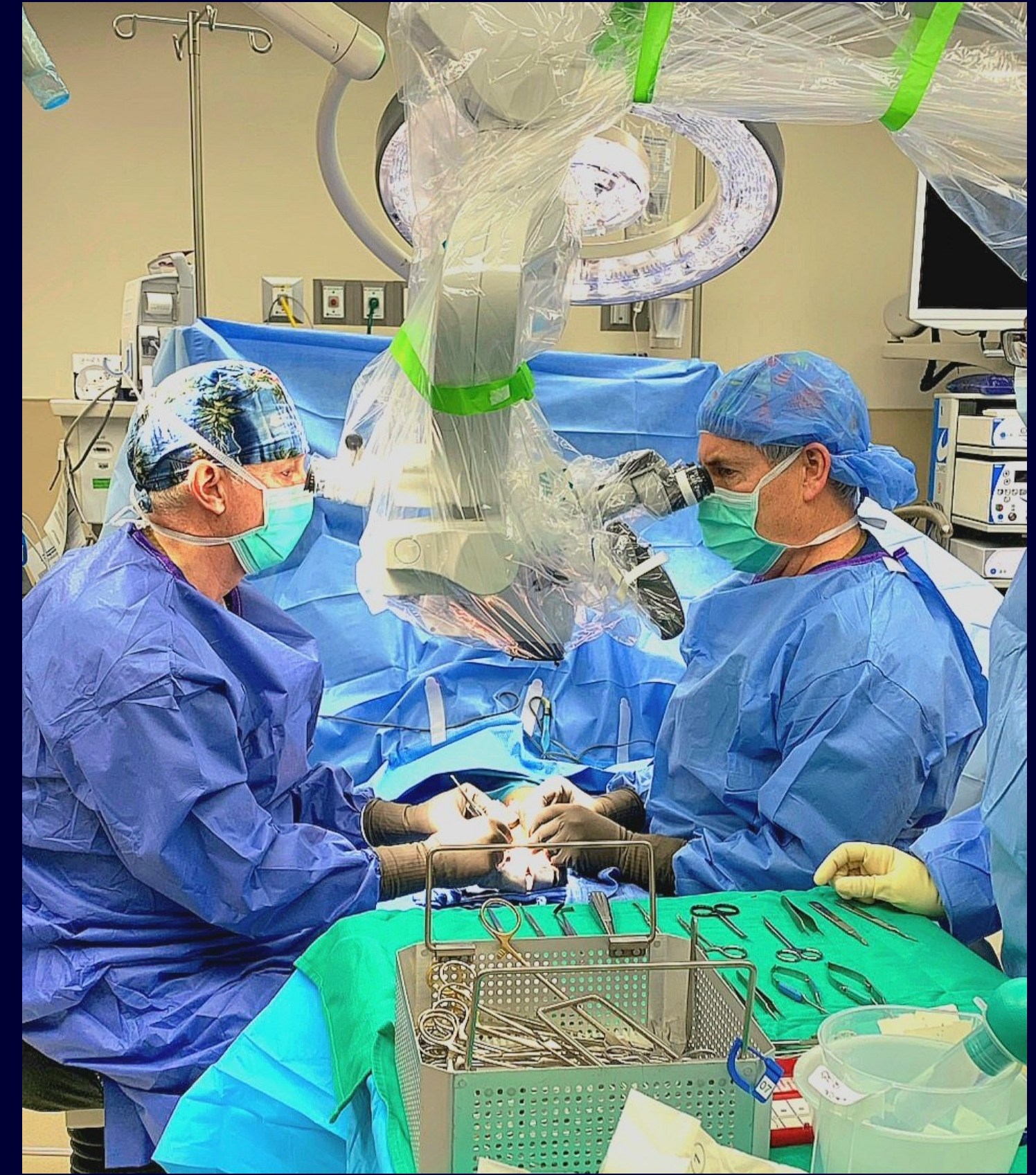
Extensor repair

- Repair then Splint
- Start motion 4 wks
- Short Course Therapy
- Anticipate near full recovery

Flexor repair

- Repair then Splint
- Start motion 3-5 days
- Extended Therapy
- Anticipate loss of motion and 50% chance repeat surgery for scar/rerupture

Extensor vs. Flexor Tendon



Nerve Lacerations Hand

Time off work: 1 wk

Restrictions: No use, Splint

Therapy: Essential for regaining motion, sensitivity

Time to MMI: 3 - 6 months

PPI: Incomplete recovery of sensation

Nerve Laceration Hand

Use Guide for Permanent Disability

Goal - No PPI and no restrictions

PPI ratings follow severity of injury

PPI Ratings

Thank you!!



For information only.

This presentation is information for educational purposes only. You should not use this information in place of a consultation or the advice of a healthcare provider.

© 2023 Orthopedic & Sports Medicine Center of Northern Indiana, Inc.
