



Nerve Compression Syndromes

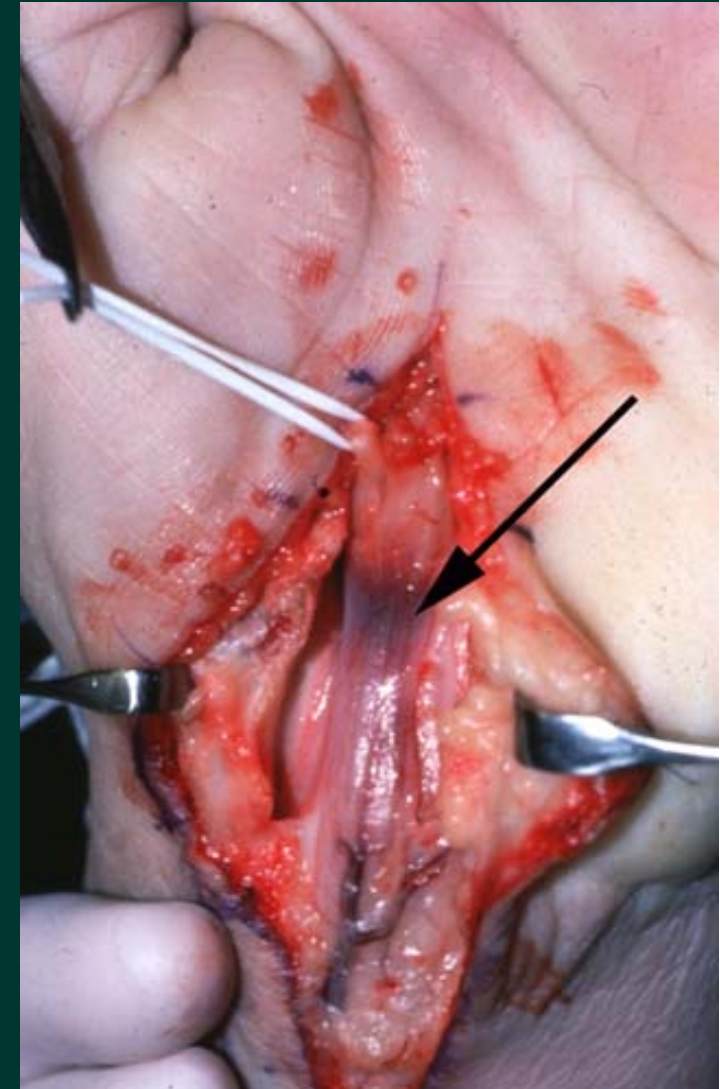
- Median Nerve
 - Carpal Tunnel Syndrome
 - Pronator Syndrome
- Ulnar Nerve
 - Cubital Tunnel Syndrome
 - Ulnar Tunnel Syndrome
 - TOS

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Carpal Tunnel Syndrome (CTS)

- Definition
Compression of the
Median Nerve in the
Carpal Canal





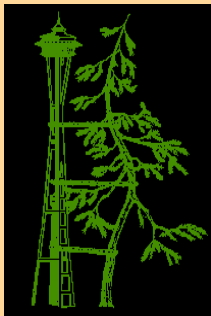
CTS Epidemiology

- Female/ Male = 2:1
- No association with Keyboards



CTS Epidemiology

- Increased Incidence:
 - Diabetes
 - Thyroid
 - Inflammatory Arthritis
- Peak Age: 50 years



How to Recognize

- Symptoms
 - Numbness
 - Night Pain





How to Recognize

- Physical Examination
 - Tinel's Sign
 - Phalen's Test
 - Sensory and Motor Loss





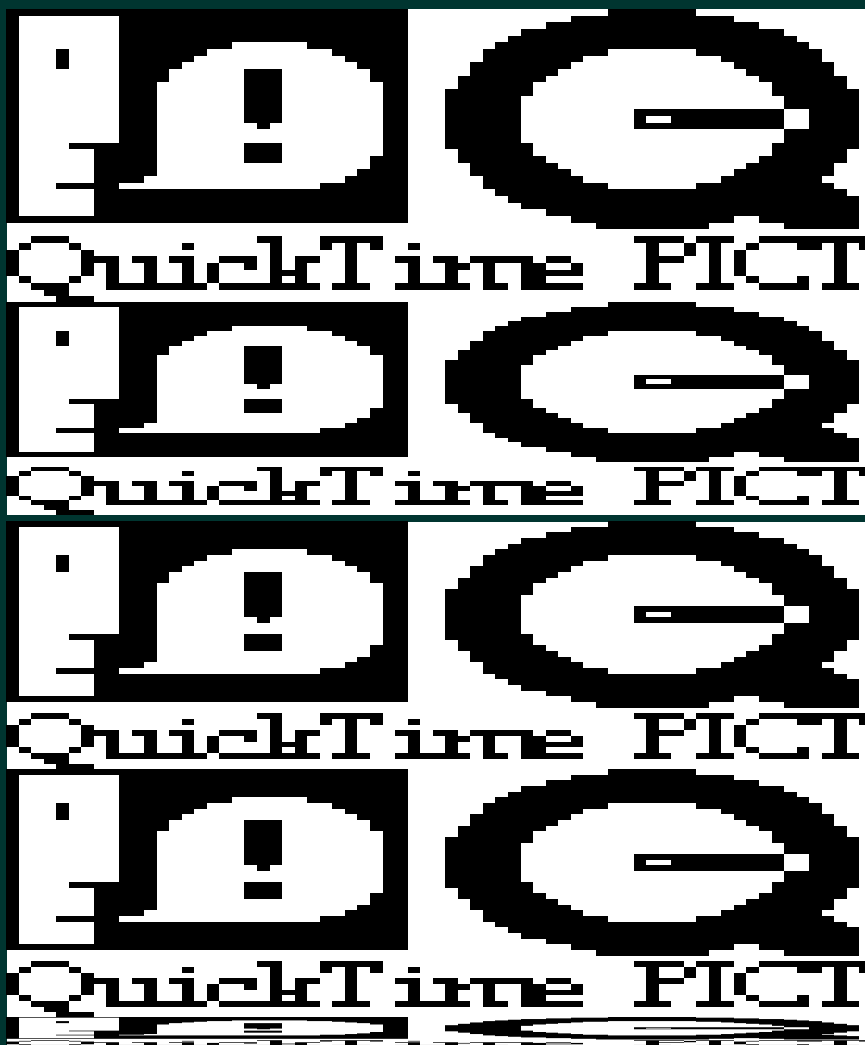
How to Work Up

- EMG/NCV: Median & Ulnar nerves
 - (+) Latency > 4.0 msec
- What is Latency?
- What is Conduction Velocity?



Office Management

- Splint
- Inject
- No time loss!





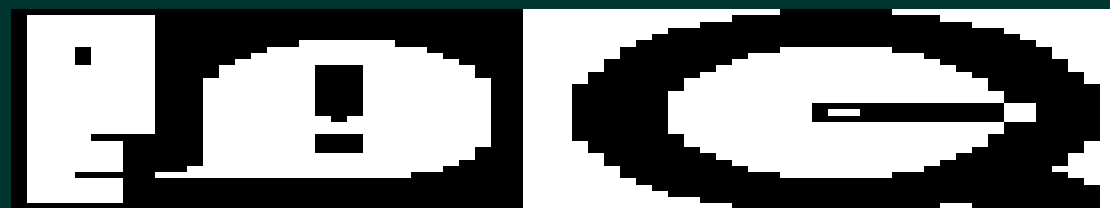
When to Refer

- Persistent Symptoms
- (+) EMG/NCV (motor latency > 4.0 msec, sensory > 3.6 msec)



How We Treat It

- Carpal Tunnel Release

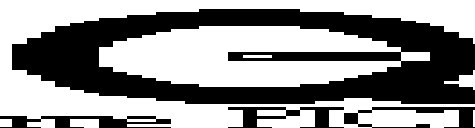


QuickTime FICT



QuickTime FICT

QuickTime FICT



QuickTime FICT



Rehabilitation

- Driving: 1 day postoperatively
- Writing: 1-2 weeks postoperatively
- Typing: 4-6 weeks postoperatively
- Heavy lifting: 6-8 week postoperatively



Pronator Teres Syndrome

- Definition
Compression of the
Median Nerve at the
Pronator Teres



Protonator Teres Epidemiology

- Male > Female
- Rare
- Associated with forearm fatigue
- Neuritis vs. compressive neuropathy



How to Recognize

- Weakness > Numbness





How to Recognize

- Hallmark:
Anterior nerve
Palsy





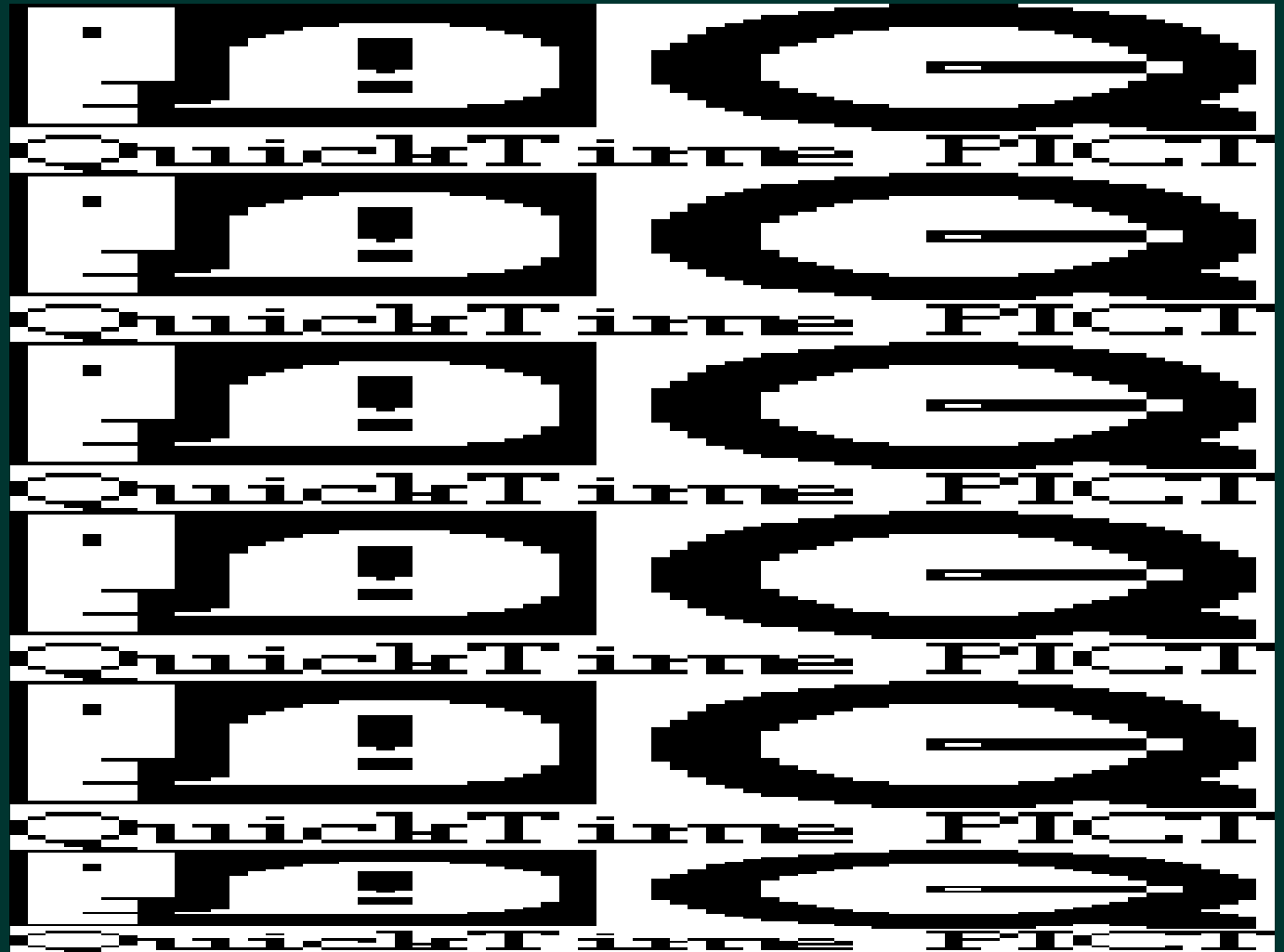
When to Refer

- Persistent Symptoms especially weakness
- (+) EMG/NCV (motor changes of FPL or FDP)



How We Treat It

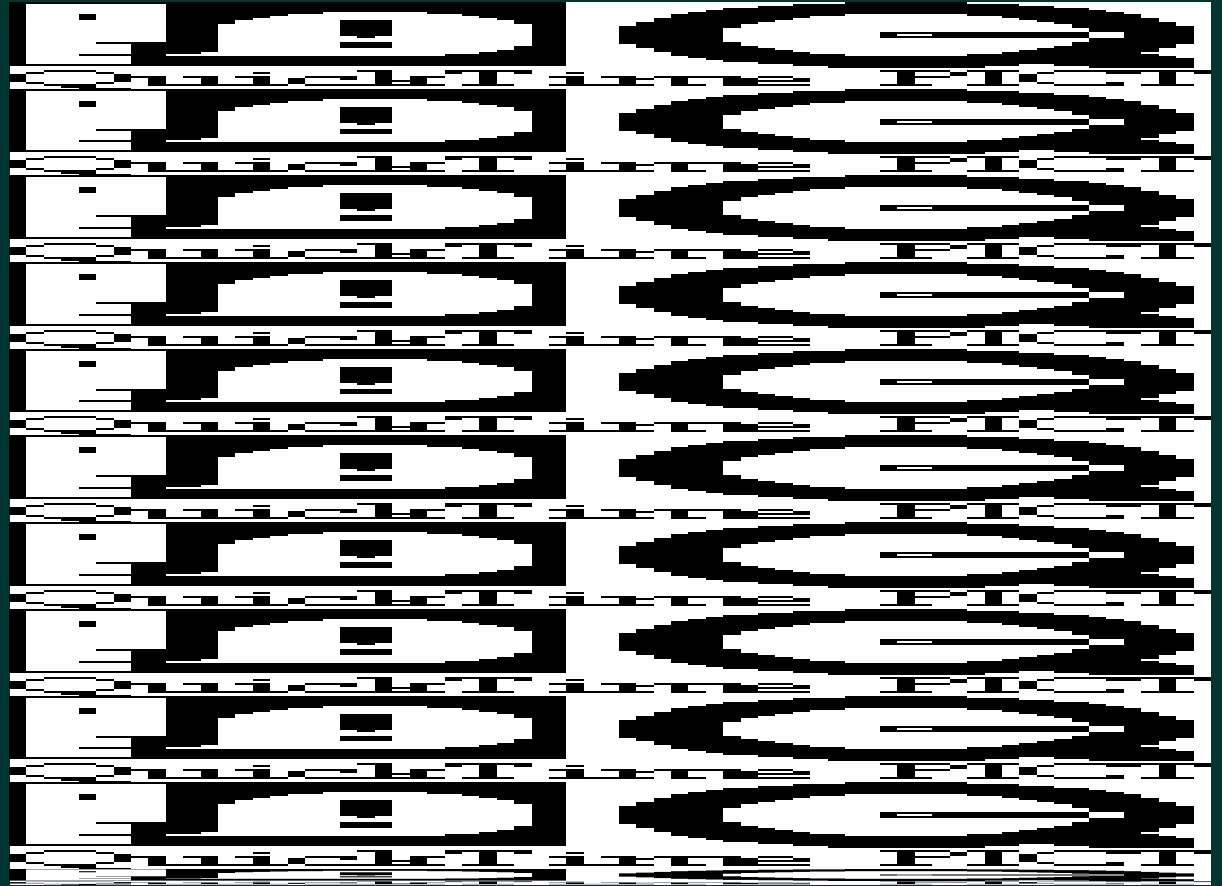
- Pronator
Teres
Release





Cubital Tunnel Syndrome

- Definition:
Compression
of the ulnar
nerve in the
cubital tunnel





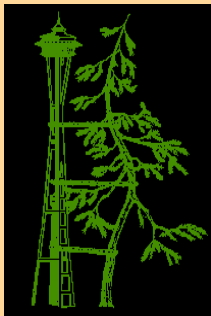
Cubital Tunnel Syndrome

- Differential
 - Cubital tunnel syndrome
 - Ulnar Tunnel syndrome
 - Thoracic outlet syndrome (TOS)
 - Cervical radiculopathy (C7,C8)



Epidemiology

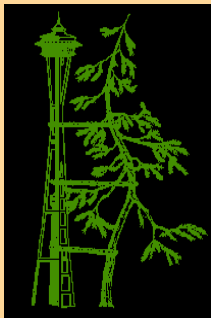
- Male = Female
- Increased Incidence
 - Diabetes
 - History of elbow fracture



How to Recognize

- Symptoms
 - Ulnar sided numbness
 - Night Pain





How to Recognize

- Physical Examination
 - Tinel's Sign
 - Stretch Test

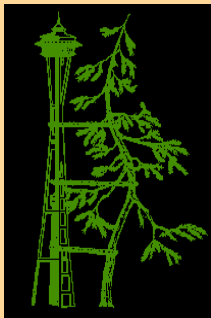




How to Recognize

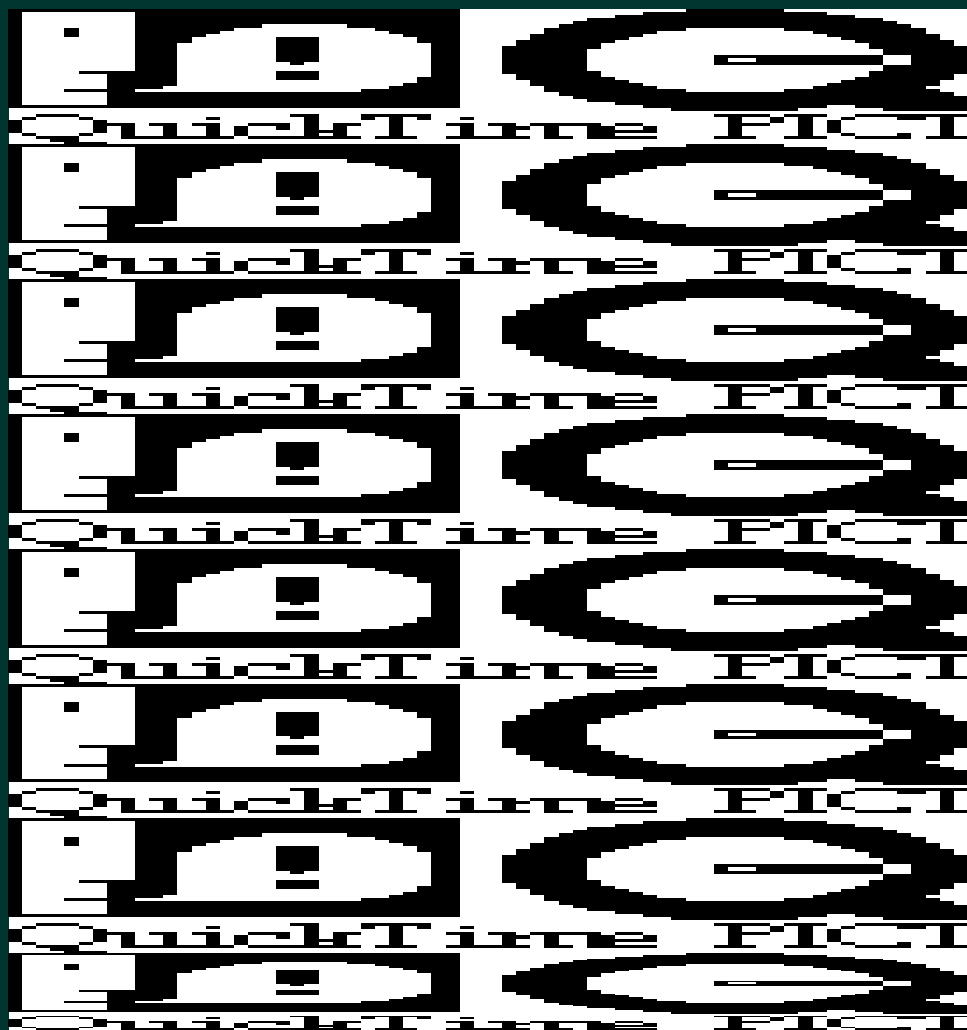
- Motor Examination
 - Weakness
 - Atrophy





How to Recognize

- Motor Examination
 - Weakness
 - Atrophy





How to Recognize

- Sensory Examination
 - Widened 2 pt
 - Decreased S-W monofilaments





How to Work Up

- EMG/**NCV**: Median & Ulnar nerves
 - (+) Conduction velocity < 50 m/sec
- What is Latency?
- What is **Conduction Velocity**?



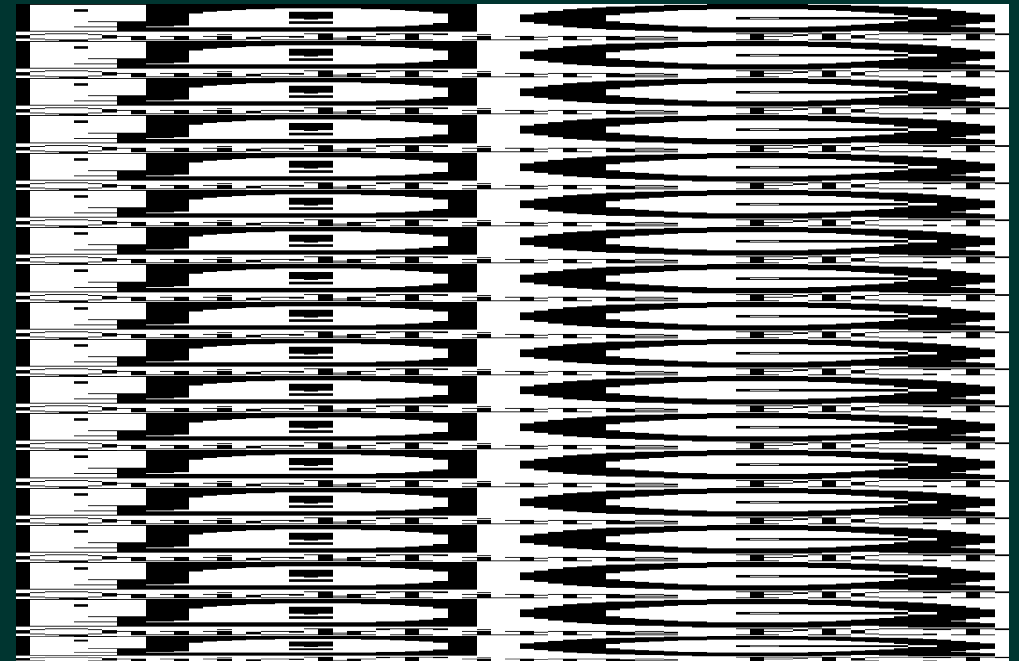
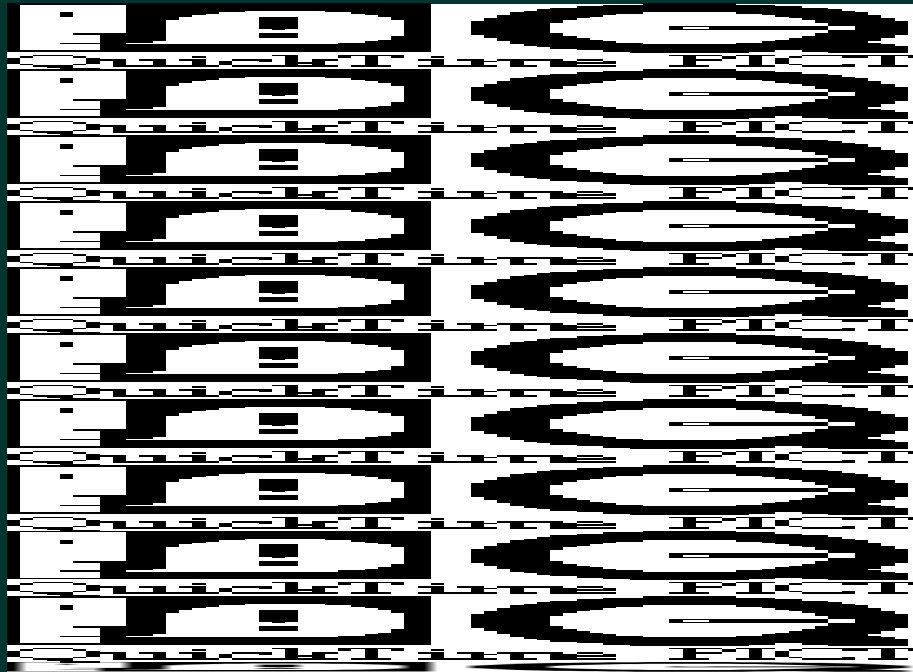
Office Management

- Activity Modification
- Night Splints: a soft wrap around the elbow



How We Treat It

- Simple Decompression if no motor involvement





How We Treat It

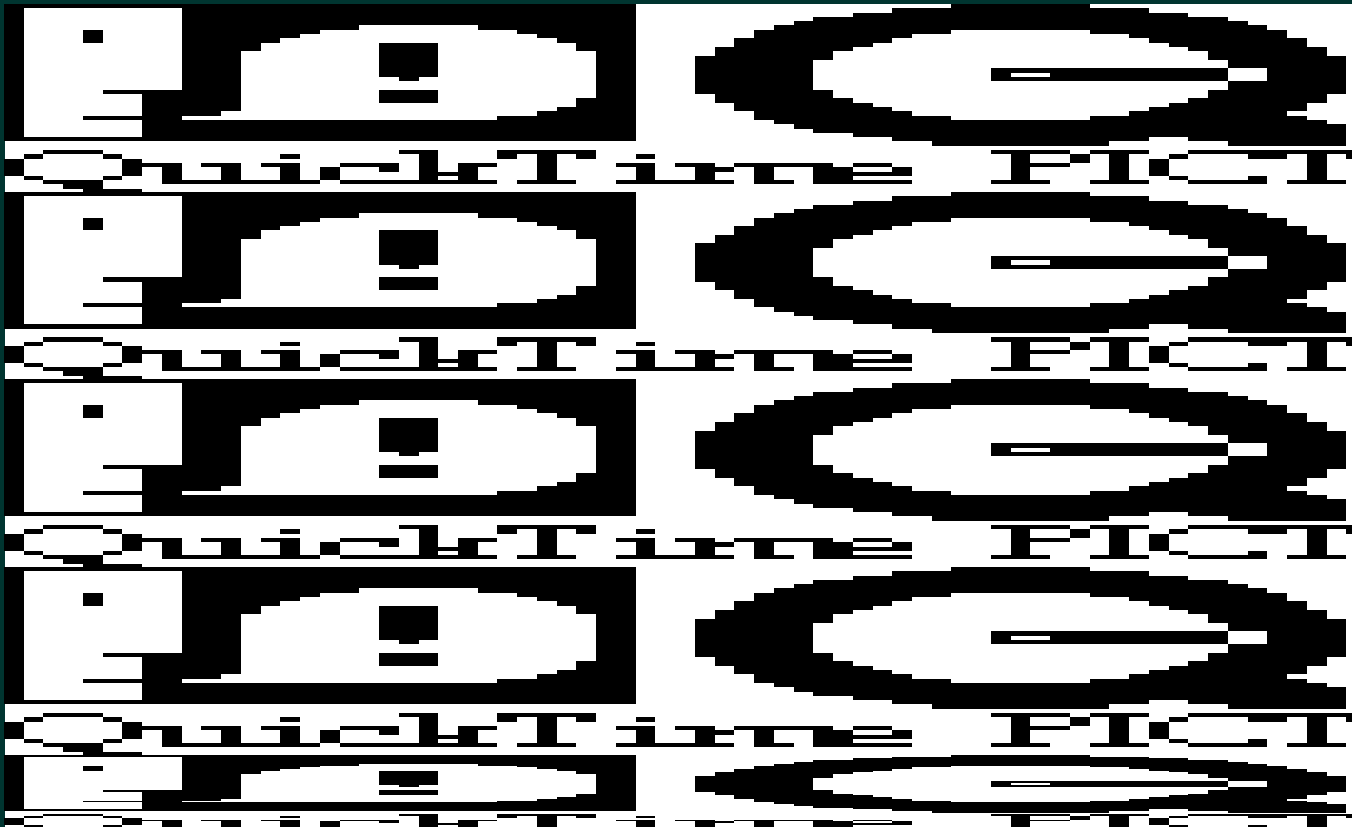
- Submuscular Transposition for Motor Involvement





How We Treat It

- Submuscular Transposition for Motor Involvement





Rehabilitation: Simple Release

- Driving: 1 day postoperatively
- Writing: 1-2 weeks postoperatively
- Typing: 3-4 weeks postoperatively
- Heavy lifting: 6 weeks postoperatively



Rehabilitation: Submuscular Transposition

- Driving: 1 week postoperatively
- Writing: 2-3 weeks postoperatively
- Typing: 4-5 weeks postoperatively
- Heavy lifting: 8 weeks postoperatively



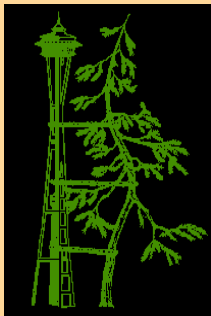
Ulnar Tunnel Syndrome

- Definition: compression of the ulnar nerve in the ulnar tunnel (Guyon's canal).



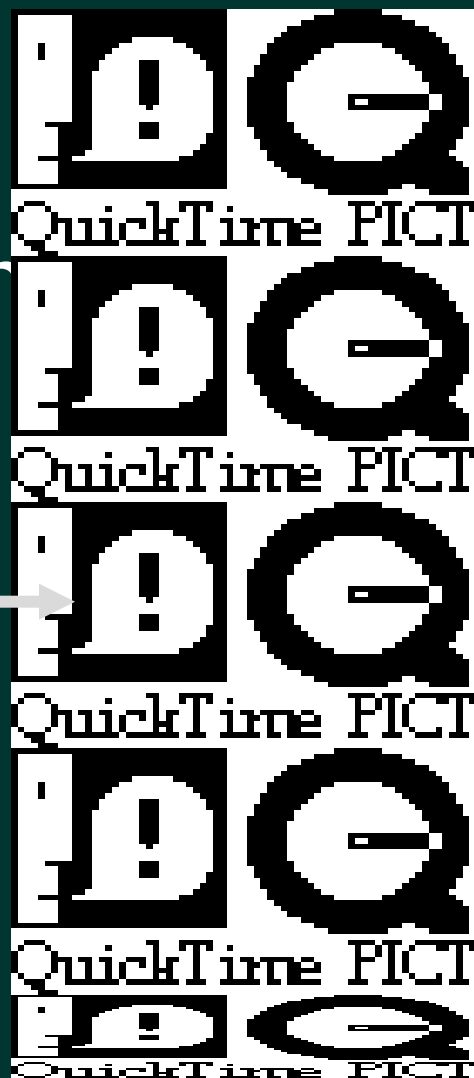
Epidemiology

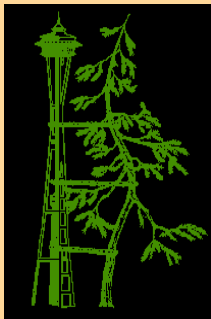
- Male = Female
- Rare
- 80% due to mass in ulnar tunnel
 - Ganglion
 - Aneurysm



How to Recognize

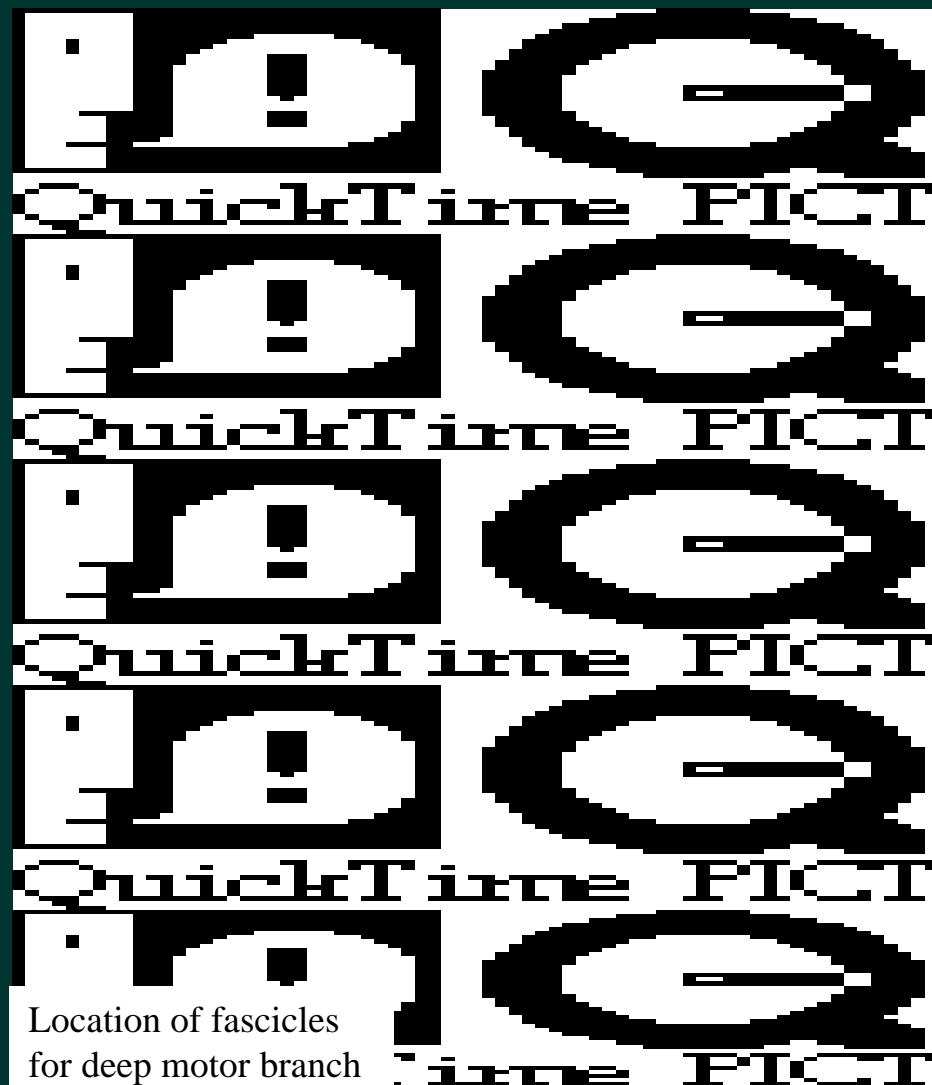
- Decreased sensation in palm spared dorsally

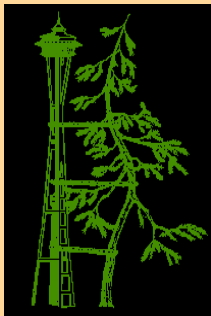




How to Recognize

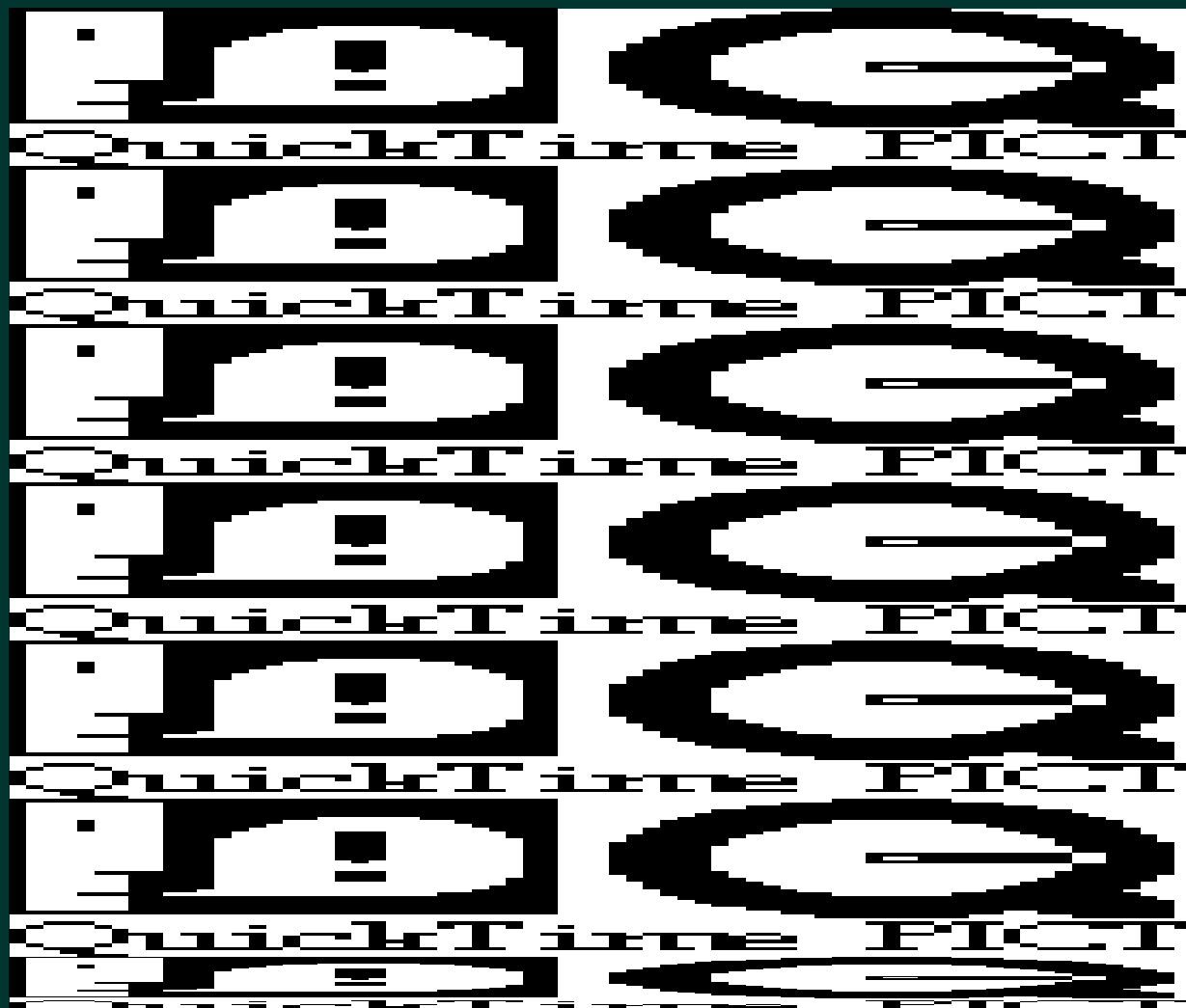
- Tinel's with ulnar nerve paresthesias

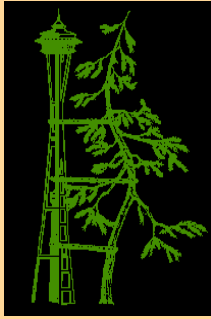




How to Recognize

- Motor
(Intrinsics) \pm
Sensory
depending on
the site of
compression





How to Recognize

- EMG/NCV
- MRI



How We Treat

- Ulnar Tunnel Release
- Resect Ganglion
- Repair Aneurysm



Thoracic Outlet Syndrome

- Definition:
TOS is
compression of
the brachial
plexus





Epidemiology

- Female/Male = 3.5:1
- < 55 years
- Increased incidence of vascular anomalies in men
- Rare

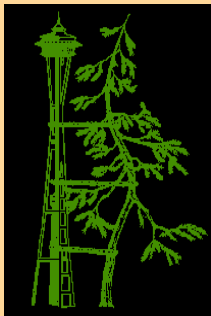


How to Recognize

- Symptoms
 - Ulnar sided numbness
 - Fatigue with arm overhead



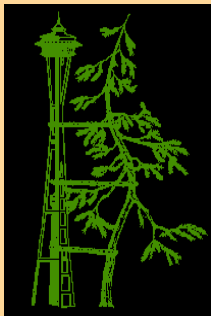
The lower trunk (C8,T1) most commonly affected



How to Recognize

- Tinel's at Erb's point

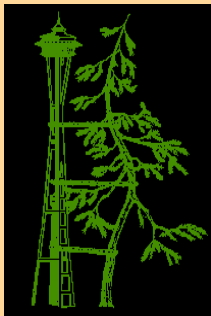




How to Recognize

- (+) Wright's and Adson's Test





How to Recognize

- (+) Vascular Studies
 - Doppler
 - Arteriogram





How to Recognize

- (+) EMG/NCV & SSEP
 - Cervical paraspinals (rule out cervical radiculopathy)
 - B.P. wave form
 - F wave



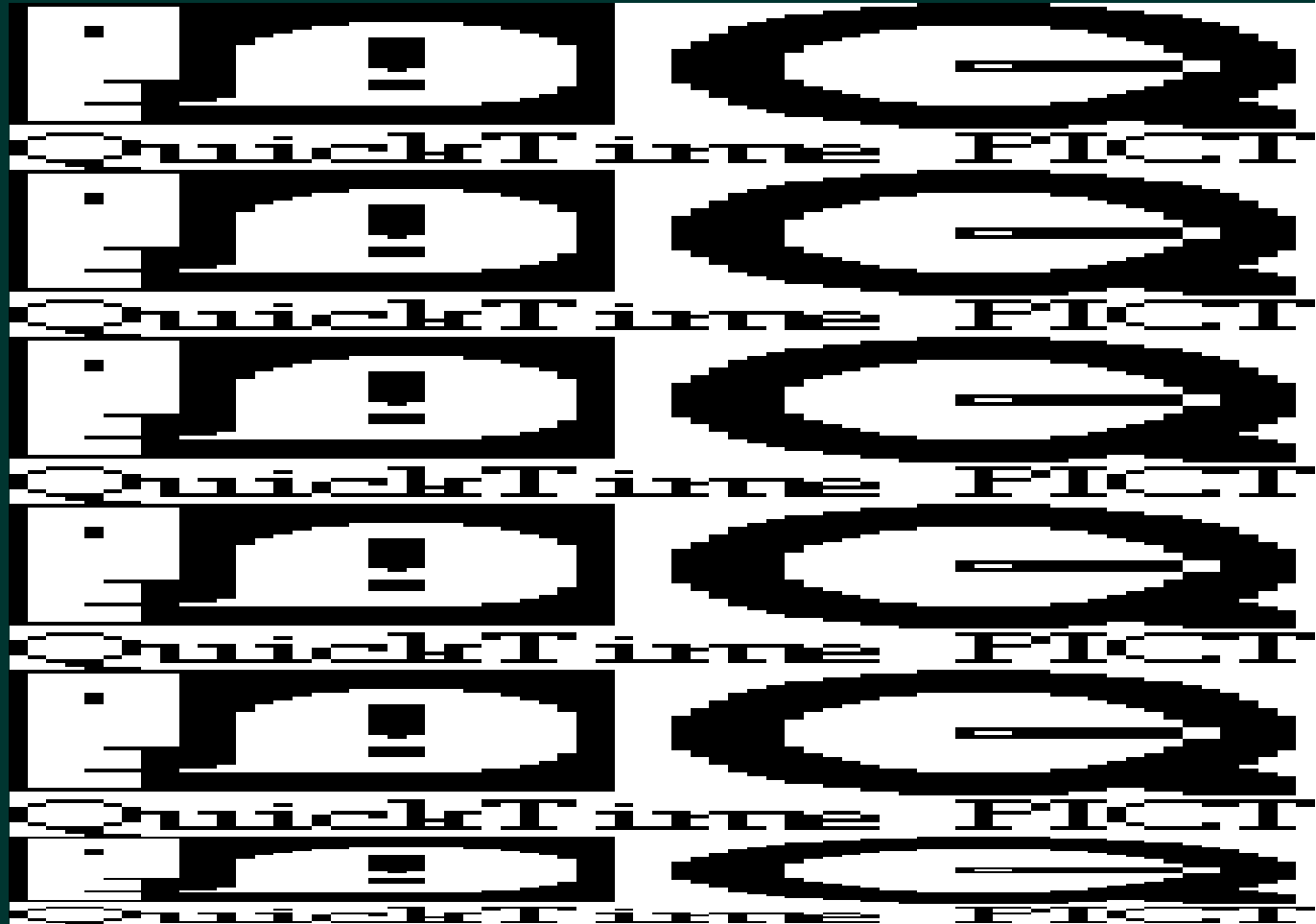
Office Management

- PT for Strengthening & Posture
 - Correct droop shoulder
 - Strengthen rhomboids and trapezius



How We Treat

- Resection of 1st rib





Rehabilitation

- Shoulder exercise: 3-4 weeks postoperatively
- Strengthening: 5-6 weeks postoperatively
- Heavy lifting: 6-8 weeks postoperatively