Tennis Elbow/Golfer's Elbow

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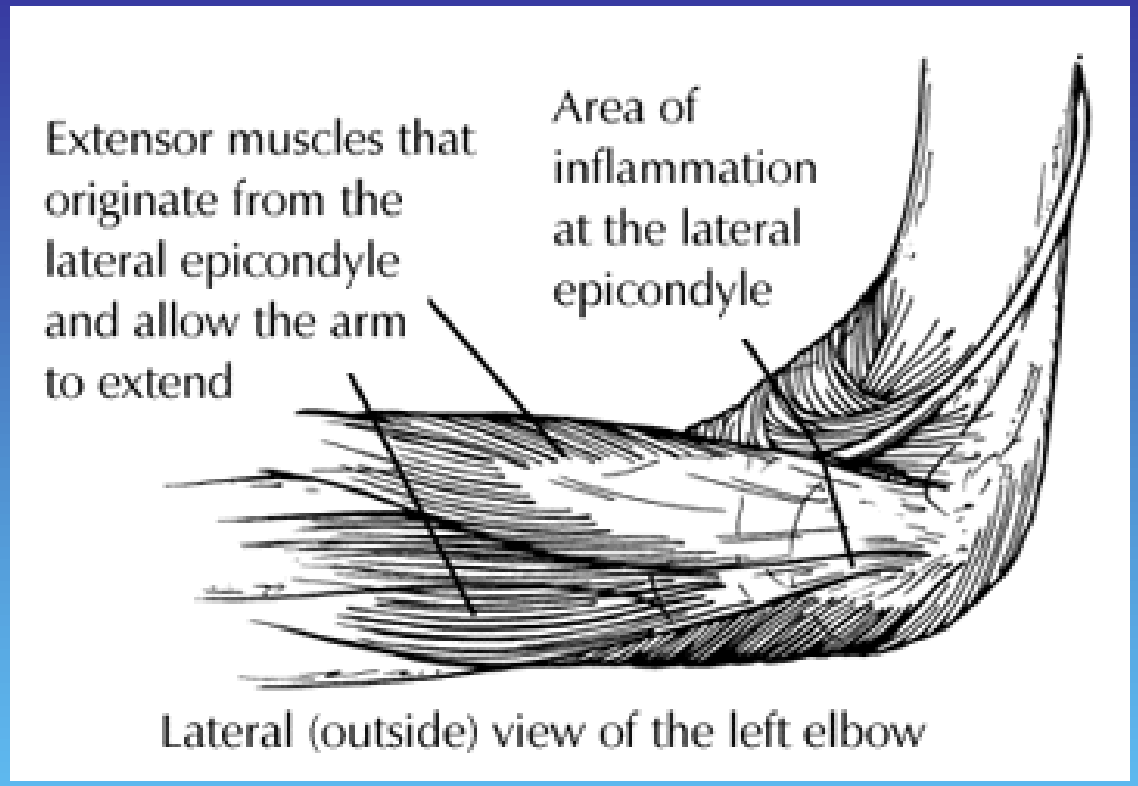
Tuesday, August 10, 2004

Tennis Elbow

- Most common overuse syndrome of the elbow
- Usually caused by excessive activities requiring gripping , squeezing, & repetitive contraction of the wrist extensors muscles
- Characterized by aching pain that is worsened with activity
- 10 times more common than golfer's elbow

Pathophysiology

- Result of inflammation, or enthesitis, at the muscular origin of the **extensor carpi radialis brevis (ECRB).**
- Inflammation leads to micro-tears of the tendon with subsequent fibrosis and, ultimately, tissue failure
- Much less commonly, extensor carpi radialis longus (ECRL), extensor digitorum communis (EDC), or extensor carpi ulnaris (ECU) are involved



Lateral (outside) view of the left elbow

History

- Lateral elbow pain of gradual onset
- Usually unilateral
- Difficulites with ADL's (ex: picking up gallon of milk)
- May present at night

Physical

- Localized tenderness to palpation just distal and anterior to the lateral epicondyle
- Pain increases with resisted wrist extension
- weakened grip on the affected side
- Elbow range of motion (ROM) is typically normal

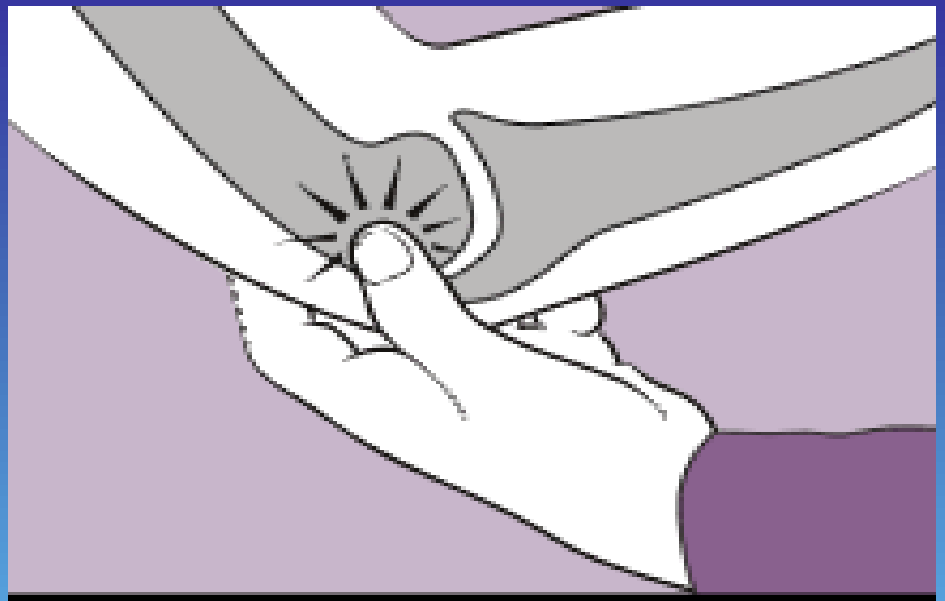


Figure 1. Tenderness in this bony area (the lateral epicondyle) is a sign of tennis elbow.

Workup

- Labs- none
- Rays- usually not necessary, however MRI & US would visualize tendinopathies
- Electrodiagnostic studies may assist in determining other causes of lateral elbow pain, such as cervical radiculopathy or posterior interosseous nerve palsy.

Rehab Program

- Physical Therapy
  - Acute Goals: reduce pain & inflammation
    - Anti-inflammatory madalities: ice, US, phonophoresis
    - Wrist splint- places extensor muscles in position of rest and prevents maximal muscle contraction
    - Counterforce bracing (tennis elbow strap)
    - Release adhesions: Deep tissue and friction message

Rehab Program

- Physical Therapy
  - Subacute Goals: restore muscle function
    - Increase flexibility, strenth, and endurance to involved muscles
    - Increase ROM
    - Strenth and Grip training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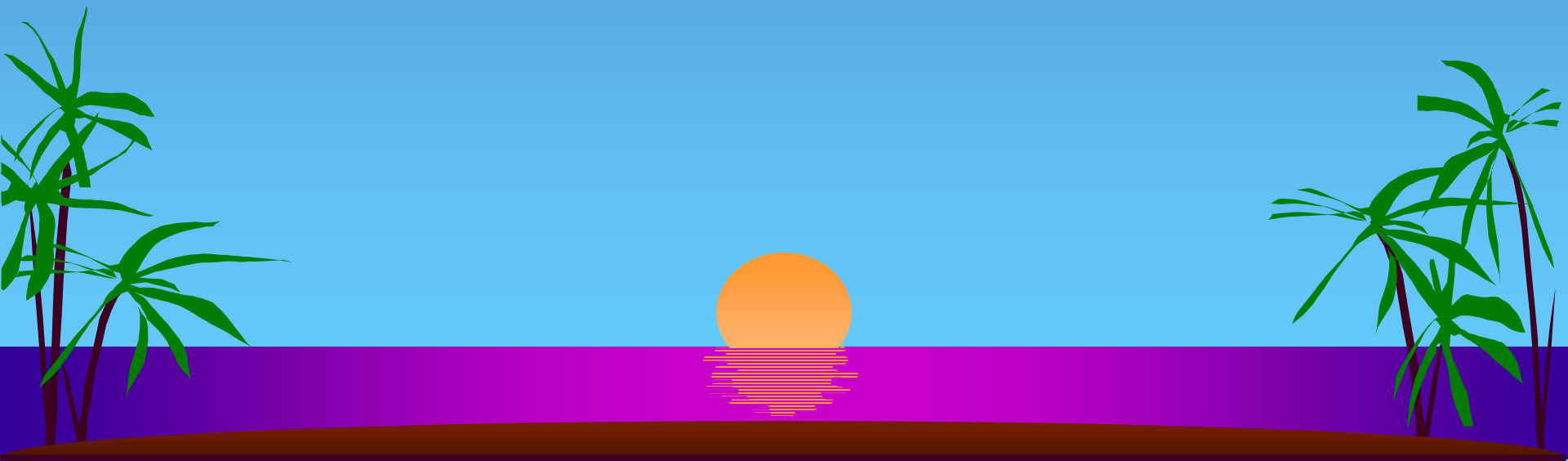
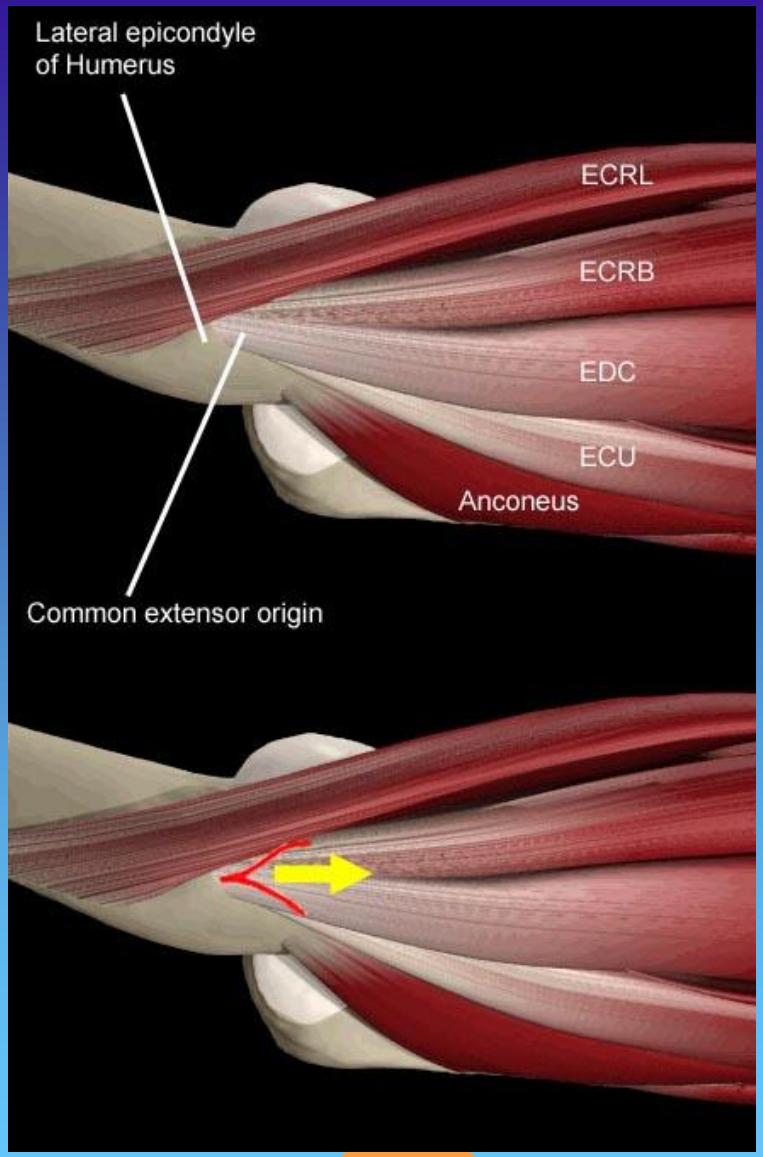
Rehab Program

- Occupational Therapy
  - Equipment modifications
  - Gradual resumption of ADL's



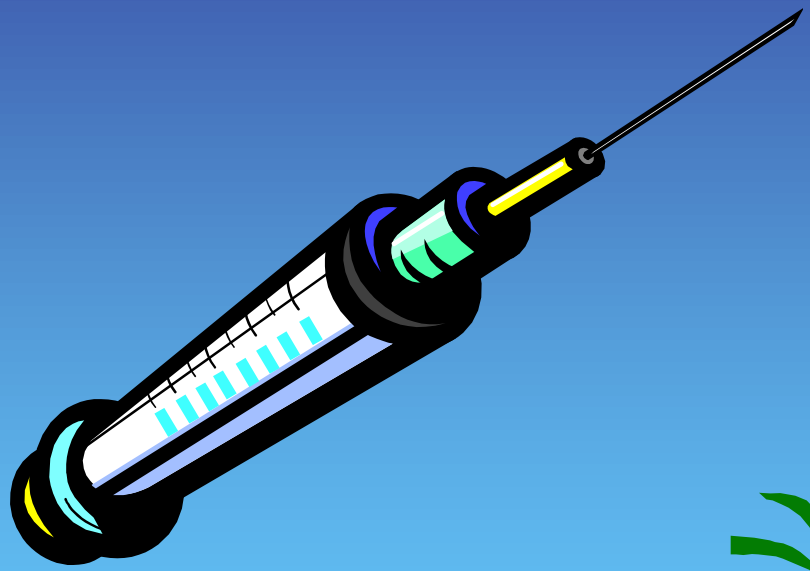
Surgical Intervention

- For refractory cases only!!!
- Resection of lateral aponeurosis is performed at common extensor origin
- Complications: scar, slower recovery (6-12 months), Nerve damage, skin tenderness & bruising, Infection


Lateral epicondyle
of Humerus
ECRL
ECRB
EDC
ECU
Anconeus
Common extensor origin

Medical Treatment

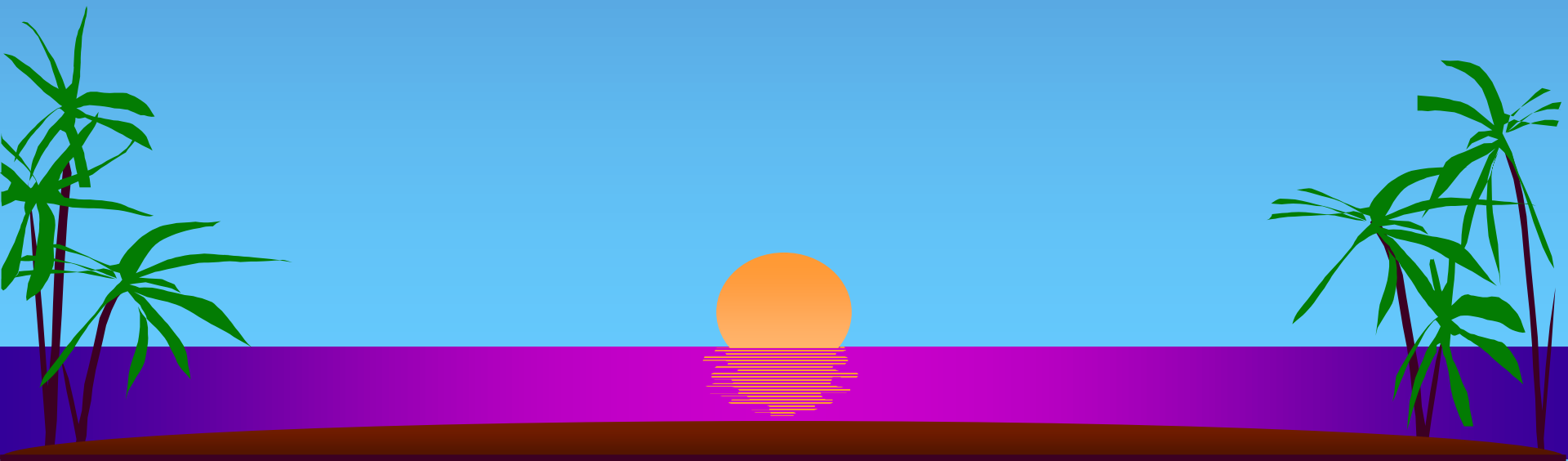
- Steroid Injections
  - Controversial
  - May inhibit collagen repair
  - Can lead to signif rapid improvement of patient's ACUTE condition
  - No heavy lifting or repetitive active for 48 hours after injection




Steroid Injection for Tennis Elbow

Medications

- NSAIDS
- Corticosteroids
- Aceteminephen



Legal Factors

- Obtain consent before administrating steroid injections
  - Explain risk of tendon rupture, subcutaneous atrophy, bleeding, infection, allergy, skin discoloration

Golfer's Elbow

- Overuse injury involving wrist flexor muscles attaches to medial epicondyle
- MC cause of medial elbow pain
- M:F= 2:1

Pathophysiology

- Affects pronator/flexor muscles at origin of anterior medial epicondyle
  - Pronator teres, palmaris longis,flexor carpi radialis >>> flexor ulnaris, flexor dig super.
  - Repetitive stress at the musculotendinous junction and its origin at the epicondyle leads to tendonitis in its most acute form and tendinosis in its more chronic form.
  - Tendinosis that occurs is primarily the result of failure of the damaged tendon to heal

Pathophysiology

- Ulnar neuropraxia due to compression of the ulnar nerve in or around the medial epicondylar groove has been estimated to occur in up to 50% of ME cases.

History

- Pain over medial epicondyle
  - Worse with wrist flexion/pronation
- History of acute injury
  - Divot in golf, hard tennis serve, throwing baseball
- Up to 50% of patients with ME complain of occasional or constant numbness and/or tingling sensation that radiates into their fourth and fifth fingers, suggesting involvement of the ulnar nerve


YEOW!
That'll be a penalty stroke there...


Area of pain
in medial
epicondylitis
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Physical

- Tenderness with palpation over the anterior aspect of the medial epicondyle
  - reproduced with resisted pronation or wrist flexion
- ROM wrist movement within nL limits
- Symptoms of ulnar neuropathy
  - (eg, decreased sensation in the ulnar nerve distribution, a positive Tinel sign). In more severe cases, decreased sensation is associated with intrinsic weakness and even intrinsic muscle atrophy may be noted.

Causes

- Repetitive use of flexor/pronator muscles, especially with valgus stress at the medial epicondyle
  - Excessive top-spin in tennis, excessive grip tension, improper pitching techniques in baseball, and improper golf swing are common sports-related causes of ME
- May be related to the patient's occupation
  - (eg, those requiring repetitive actions like using a screwdriver or hammer).

Golfer's Elbow

Golfers sustain injury to the muscle insertions at the elbow (epicondylitis) when the elbow absorbs too much of the force on impact.

Workup

- Labs- none
- Rays- radiograph of the elbow often is performed to rule out associated lesions
  - (eg, loose bodies, bony avulsion, osteoarthritis)
  - Typically, anteroposterior (AP) and lateral films are adequate.
  - Oblique views are needed if loose bodies are suggested because of a catching or clicking sensation described by the patient or upon the examination
  - NCS- if ulnar neuropathy is suggested

Rehab Program

- OT/PT
  - Begin acute treatment program with RICE (rest, ice compression, elevation) & bracing
    - ICE
      - Relative rest of the affected muscles and tendons is advised typically for 1-6 weeks until discomfort subsides. Ice for 5-10 minutes 4-6 times a day.
      - Particularly important if a patient presents after an acute event.
      - Instruct patients to avoid icing over the ulnar nerve

Rehab Program

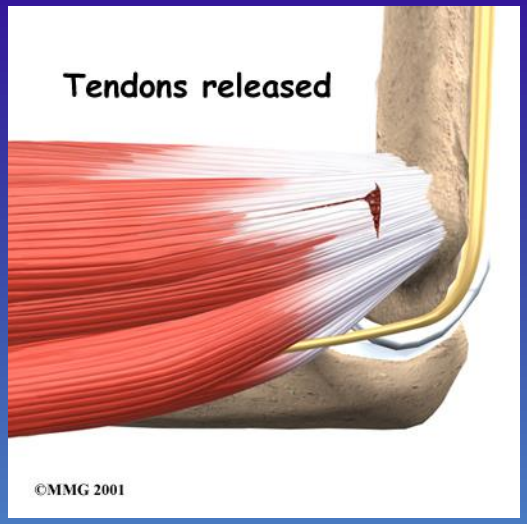
- Compression
  - Medial counterforce brace (tennis elbow splint)
    - pad placed anteromedially on the proximal forearm over the flexor pronator mass
    - Discontinue if symptoms of ulnar neuropathy worsen
    - if symptoms are severe, brace with a wrist splint worn in neutral to rest the wrist flexors
    - In the case of ulnar nerve involvement, consider a nighttime elbow extension splint
    - The splint is made in 30-45° of elbow flexion
    - daytime elbow pad also may be useful to limit additional trauma to the nerve

Rehab Program

- After initial discomfort subsides:
  - Initiate muscle tendon re-conditioning
    - Gentle stretching
    - Gradual strengthening of flexors/pronators
    - Concomitant modalities may include ultrasound, iontophoresis, phonophoresis, transcutaneous electrical nerve stimulation (TENS), and low-energy extra-corporal shock wave therapy
    - BE CAREFUL TO PREVENT RE-INJURY!

Surgical Intervention

- Epicondylar debridement rarely is indicated but has proven to be effective in cases where conservative treatment has failed
- The ulnar nerve may be decompressed surgically


Tendons released
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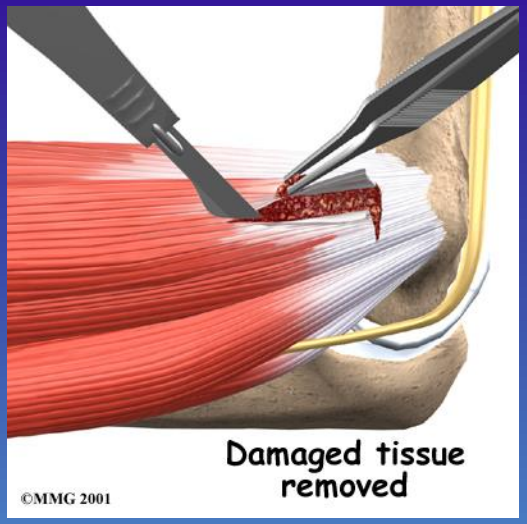
Damaged tissue removed
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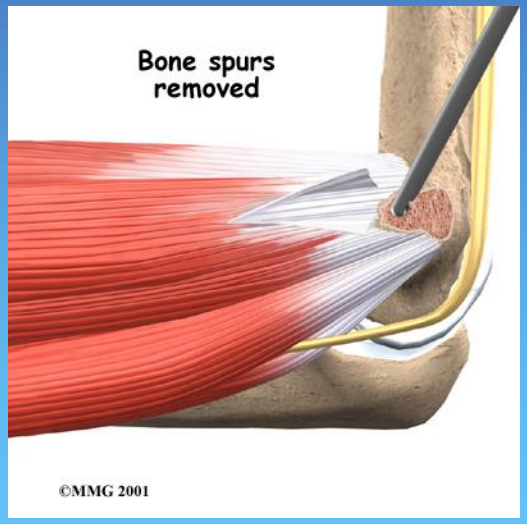
Bone spurs removed
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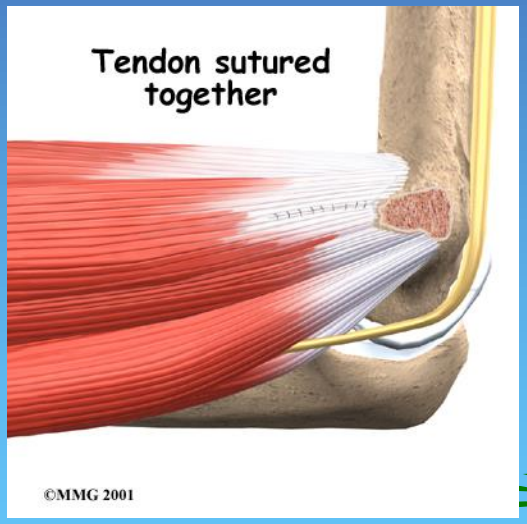
Tendon sutured together
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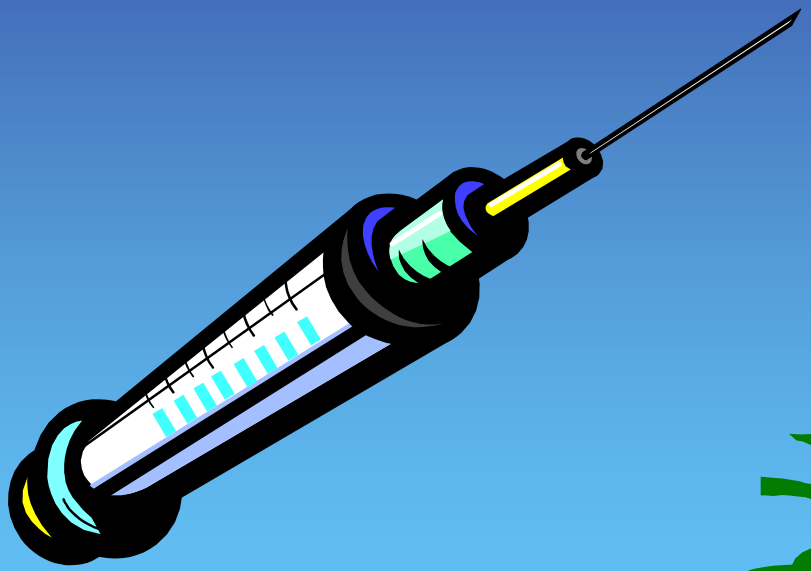
Medical Treatment

- Injection with local anesthetic & steroid to the point of max. tenderness if conserv. measures fail
- Avoid injection directly into the tendon or the ulnar nerve!!!
- Limit # of injections to 3 to decrease risk of tendon atrophy or rupture



Medication

- NSAIDS!!!!

Medical-legal pitfall

- Be able to recognize acute fracture or complete ligament tear, which would require immediate orthopedic referral

Thank you