

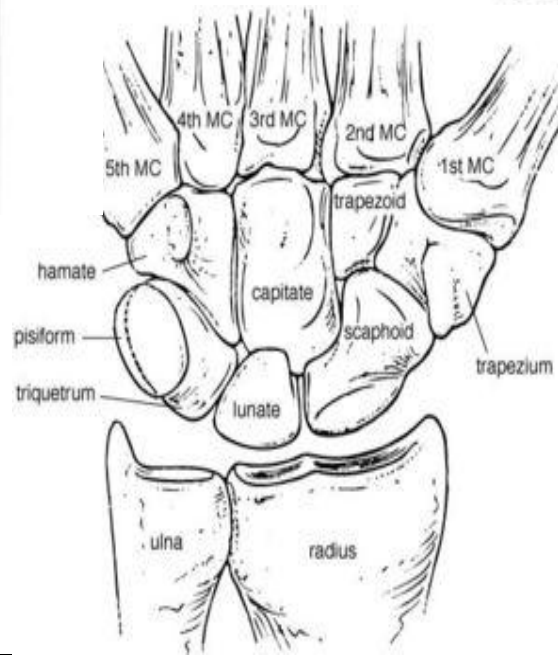
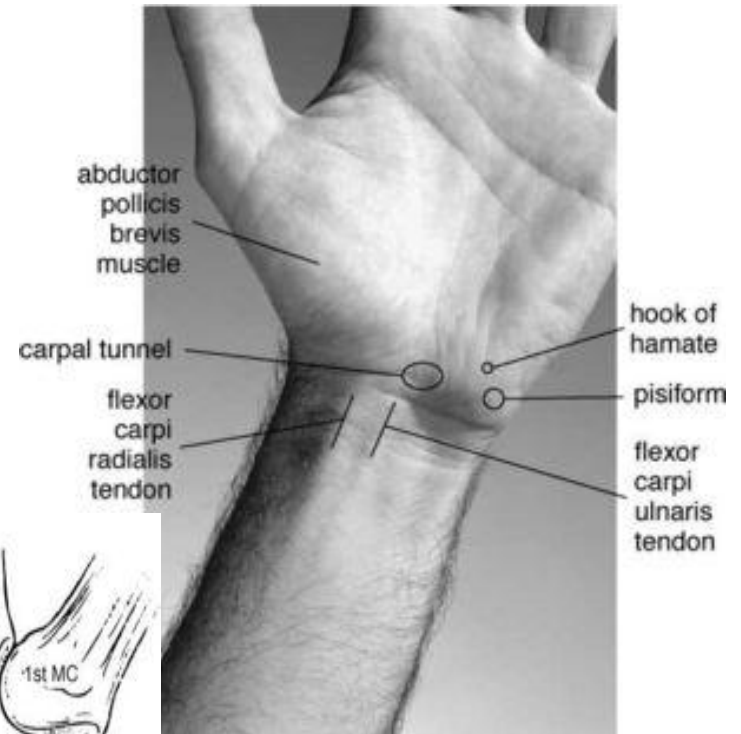
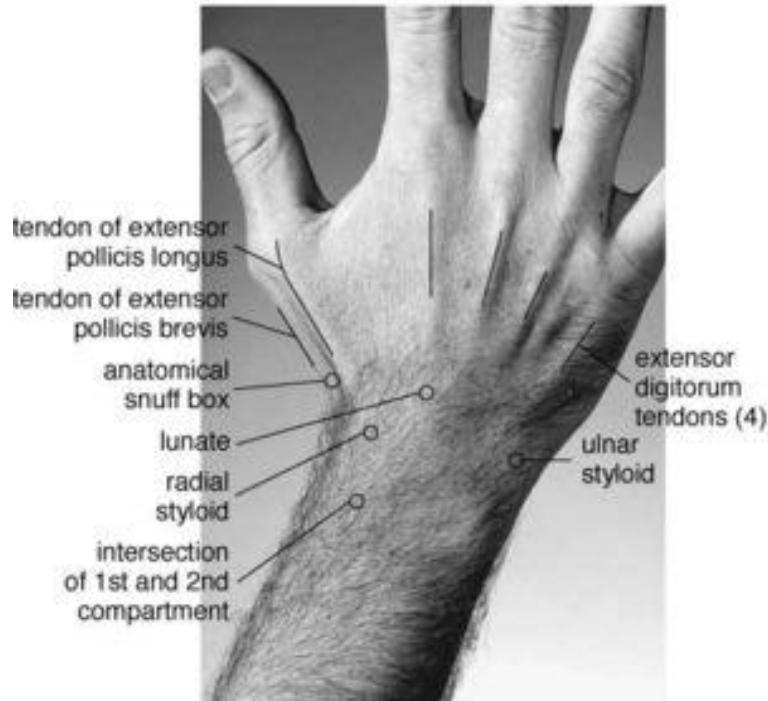
Common Hand Problems



American Academy of Orthopaedic Surgeons

HAND & WRIST

External View



**THE CARPAL BONES;
VOLAR ASPECT**

VOLAR

RADIUS

STYLOID PROCESS OF RADIUS

SCAPHOID (NAVICULAR) BONE

TUBERCLE OF SCAPHOID BONE

TRAPEZIUM (GREATER MULTANGULAR) BONE

TUBERCLE OF TRAPEZIUM (GREATER MULTANGULAR)

TRAPEZOID (LESSER MULTANGULAR) BONE

ULNA

STYLOID PROCESS OF ULNA

(Semilunar)
LUNATE BONE

TRIQUETRAL BONE

PISIFORM BONE

HAMATE BONE *(=uncinate)*

HAMULUS (HOOK) OF HAMATE BONE

CAPITATE BONE

METACARPAL BONES



ULNA

STYLOID PROCESS OF ULNA

PISIFORM BONE

TRIQUETRAL BONE

HAMATE BONE

CAPITATE BONE

RADIUS

STYLOID PROCESS OF RADIUS

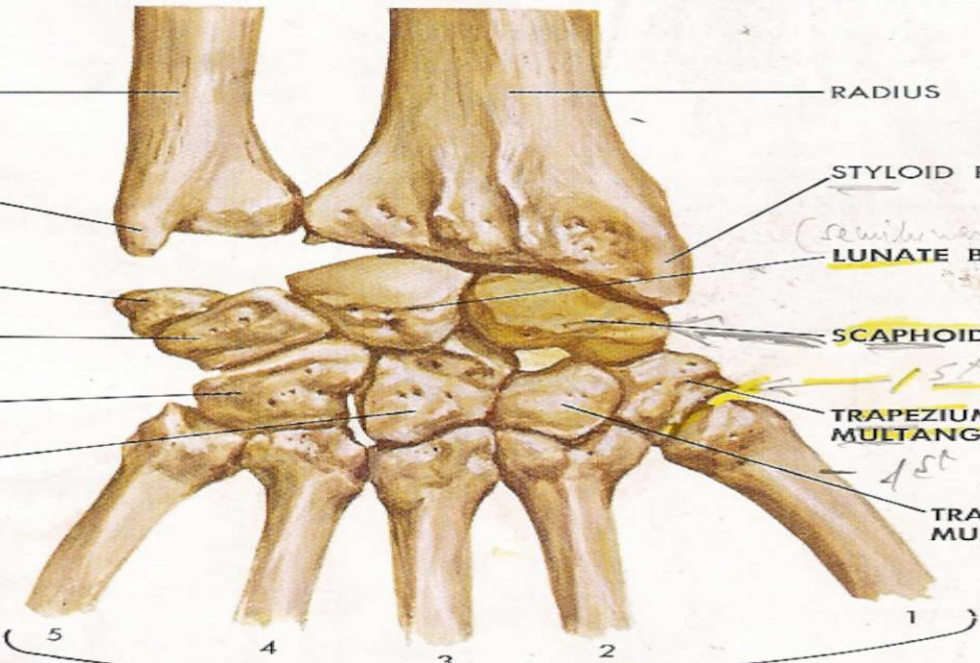
(Semilunar)
LUNATE BONE

SCAPHOID (NAVICULAR) BONE

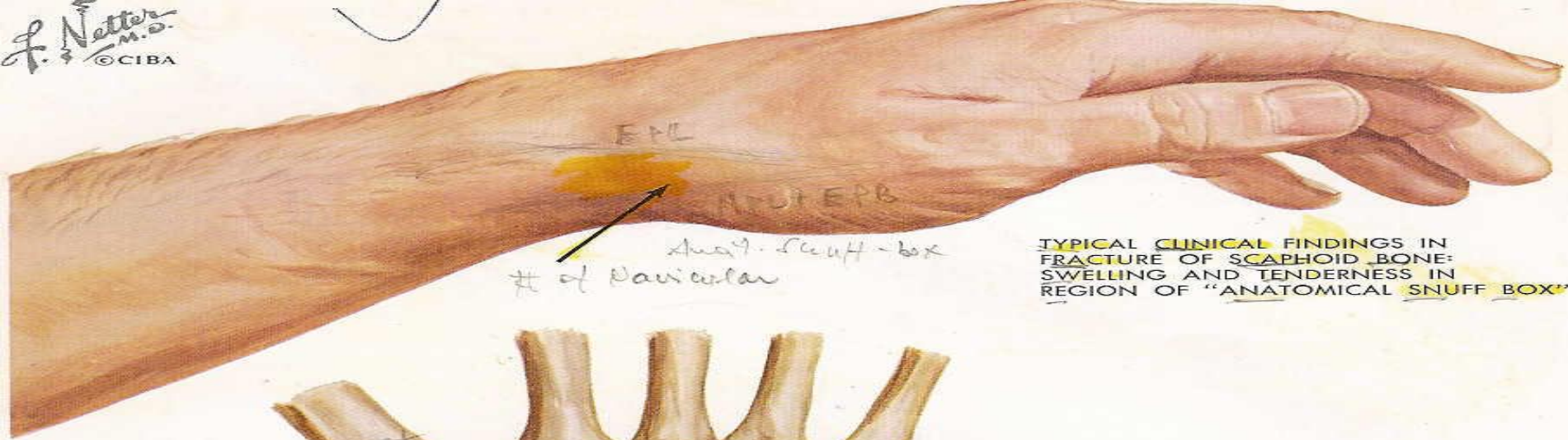
TRAPEZIUM (GREATER MULTANGULAR) BONE

TRAPEZOID (LESSER MULTANGULAR) BONE

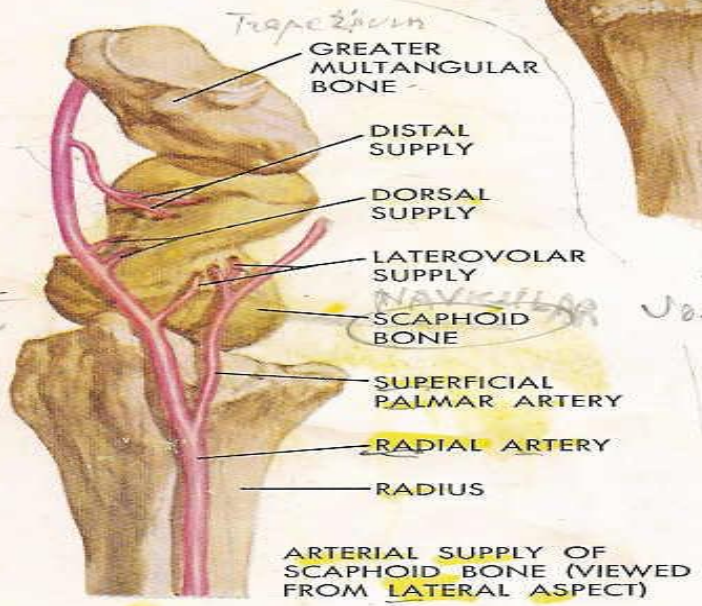
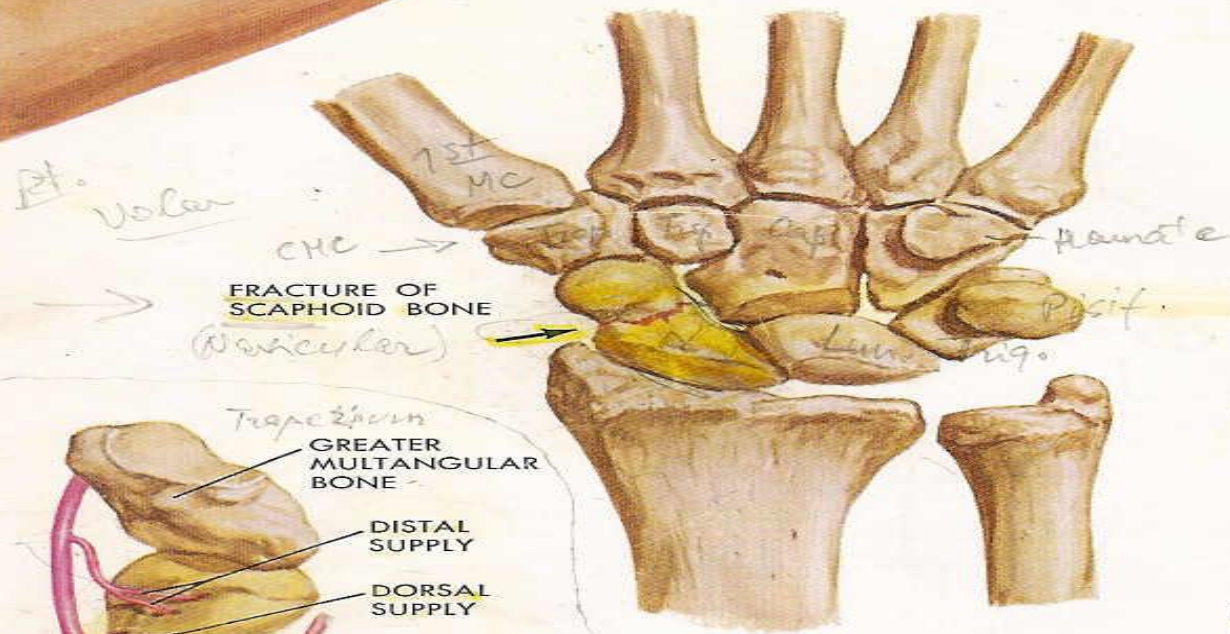
*(R) Hand
DORSAL*



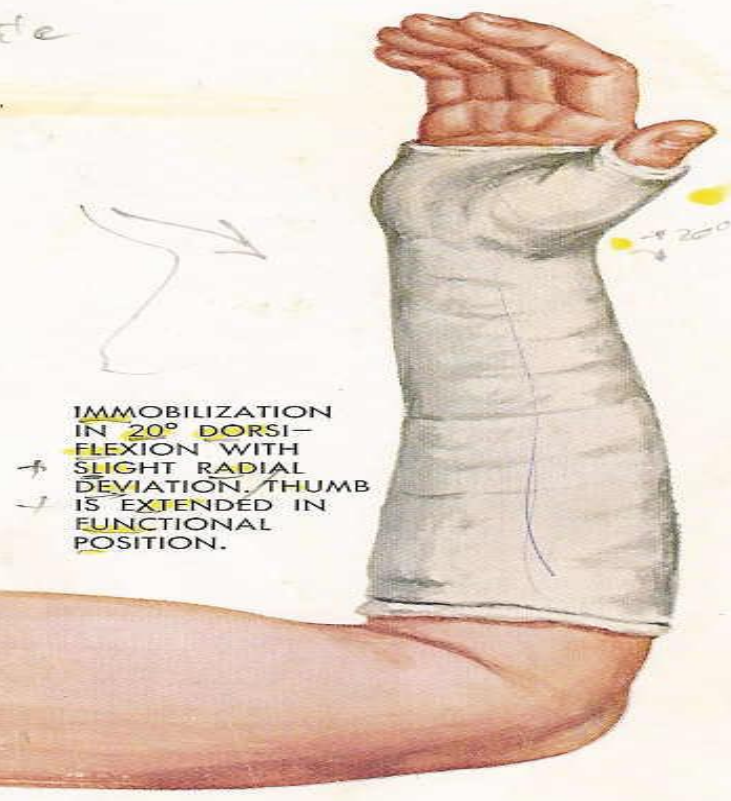
**THE CARPAL BONES;
DORSAL ASPECT**



TYPICAL CLINICAL FINDINGS IN FRACTURE OF SCAPHOID BONE: SWELLING AND TENDERNESS IN REGION OF "ANATOMICAL SNUFF BOX"



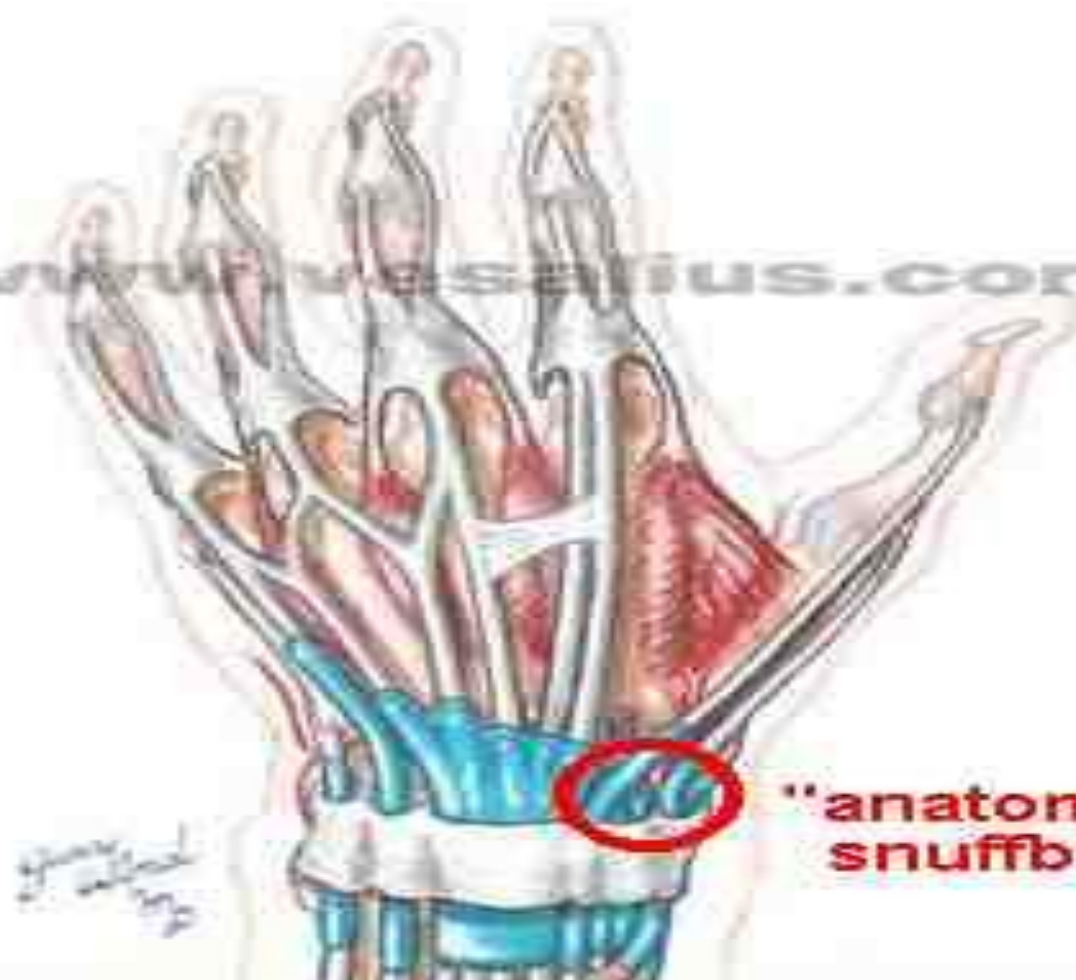
ARTERIAL SUPPLY OF SCAPHOID BONE (VIEWED FROM LATERAL ASPECT)



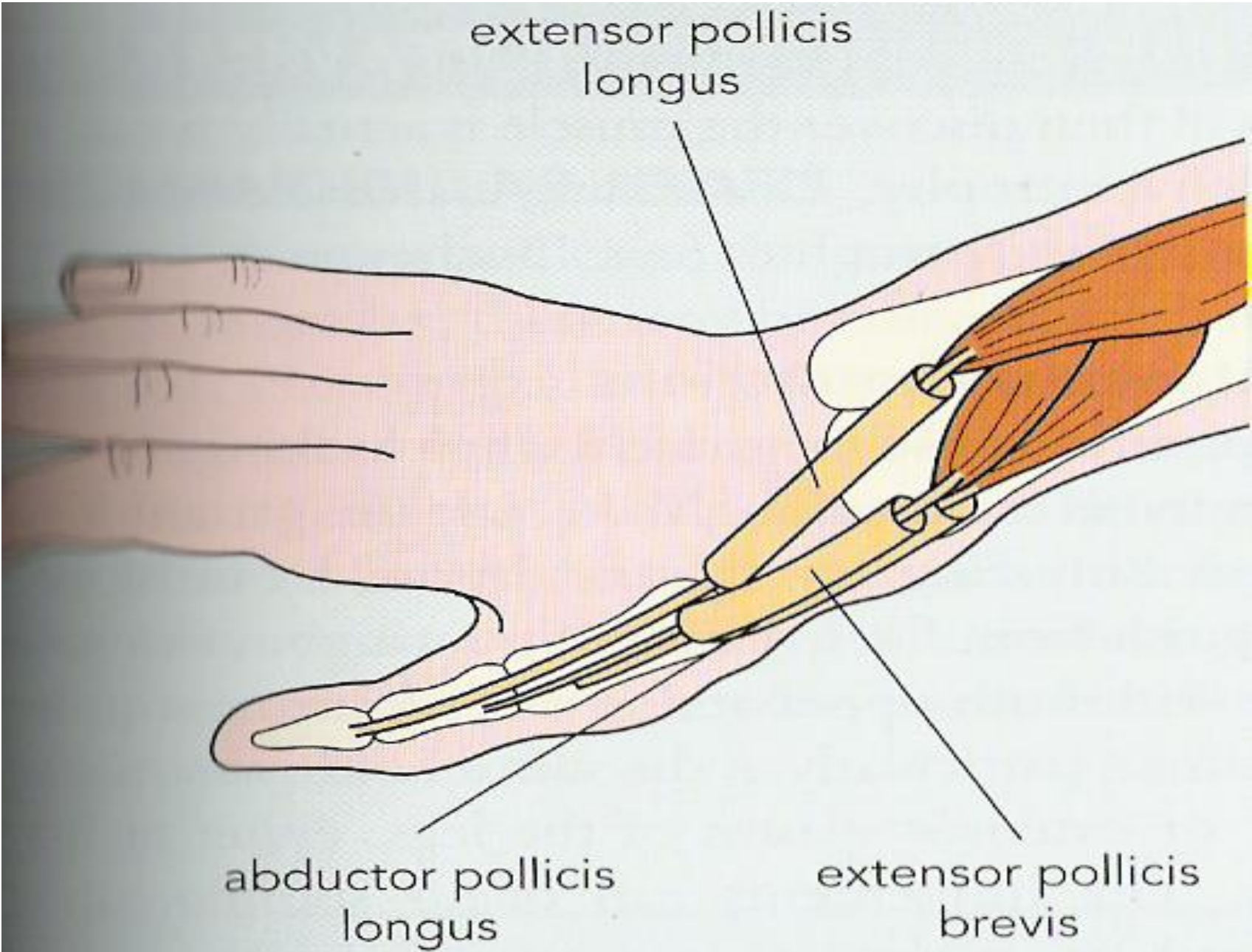
IMMOBILIZATION IN 20° DORSI-FLEXION WITH SLIGHT RADIAL DEVIATION. THUMB IS EXTENDED IN FUNCTIONAL POSITION.

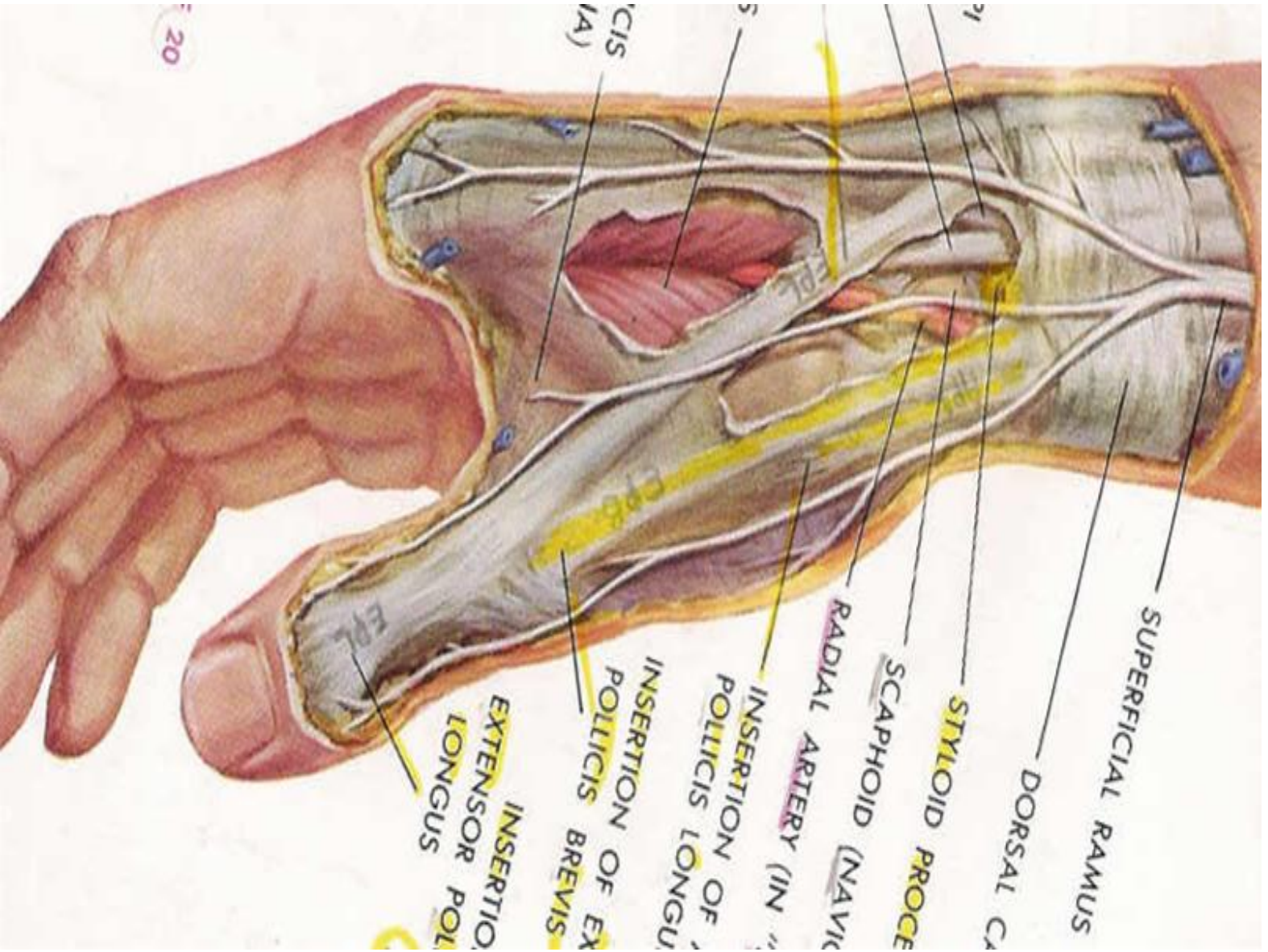


www.us-scius.com



**"anatomical
snuffbox"**





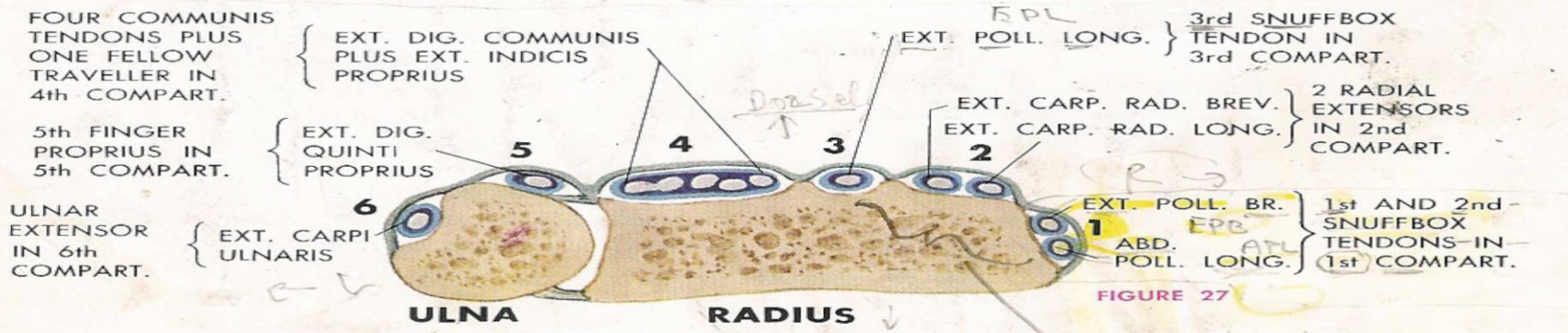
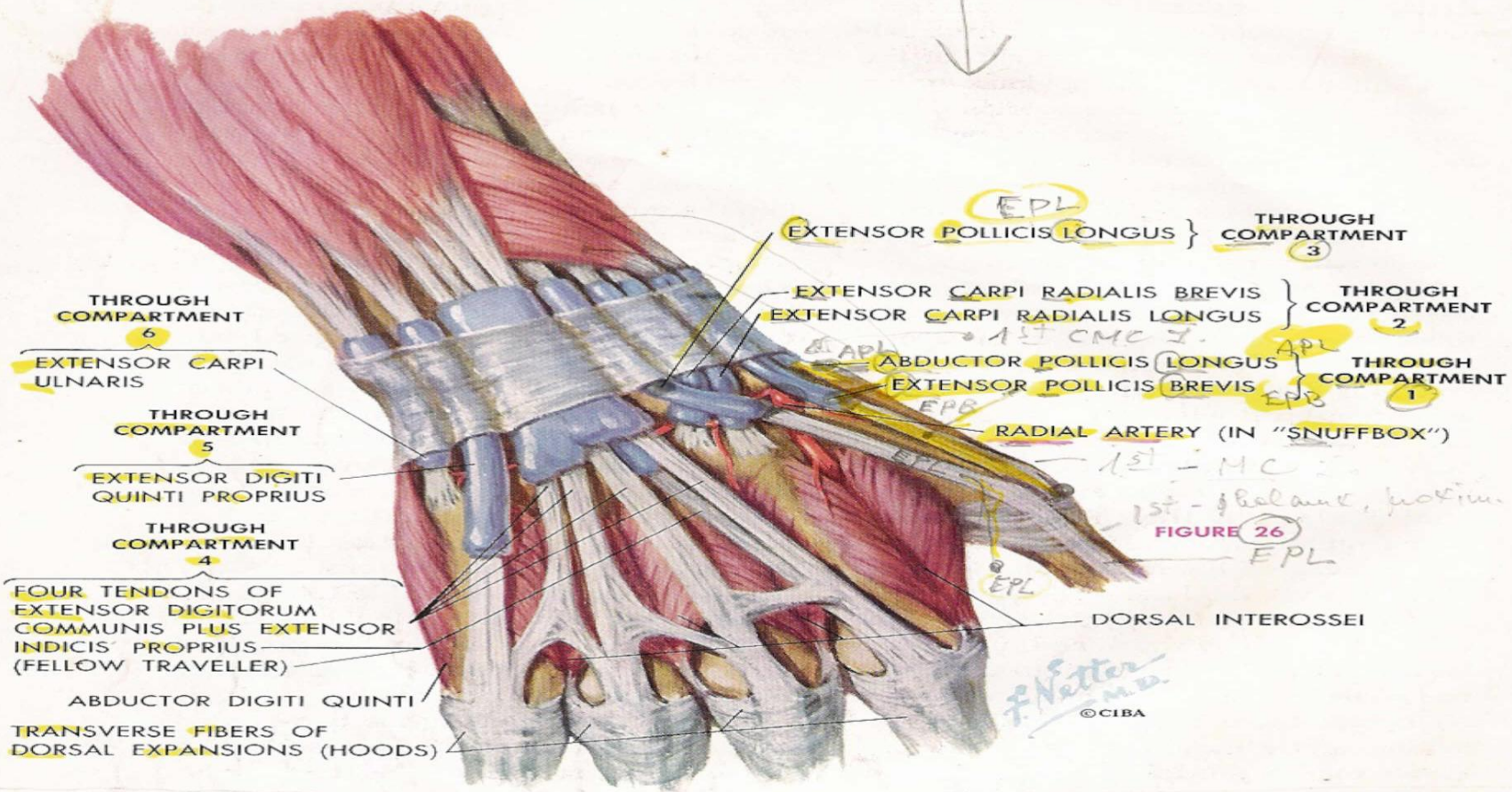


FIGURE 26

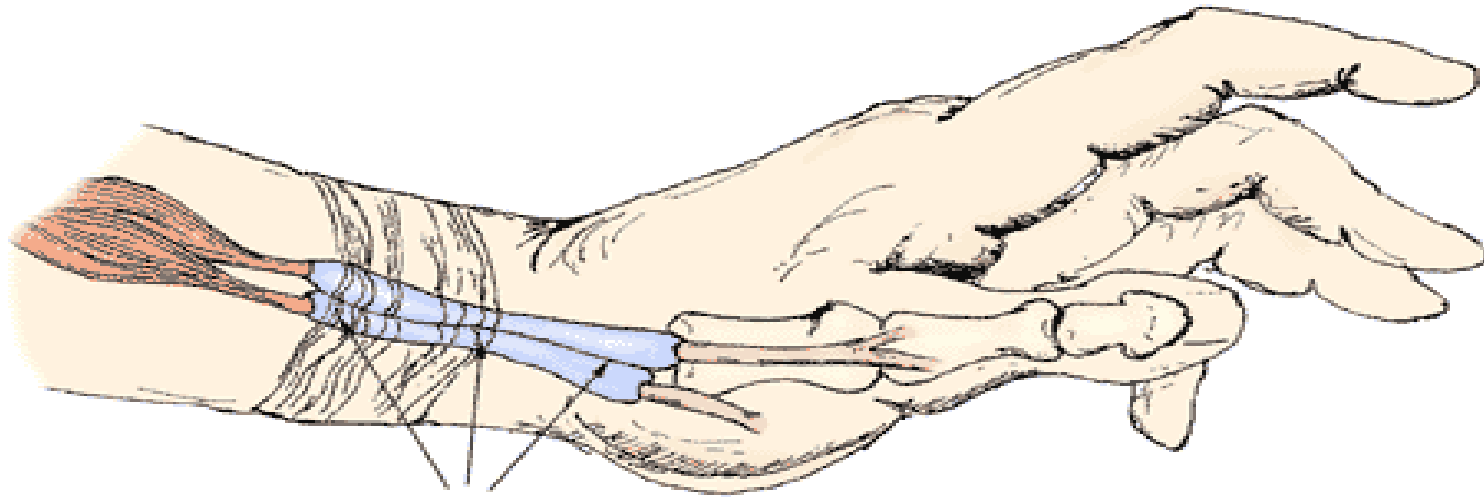
FIGURE 27

RT Hand

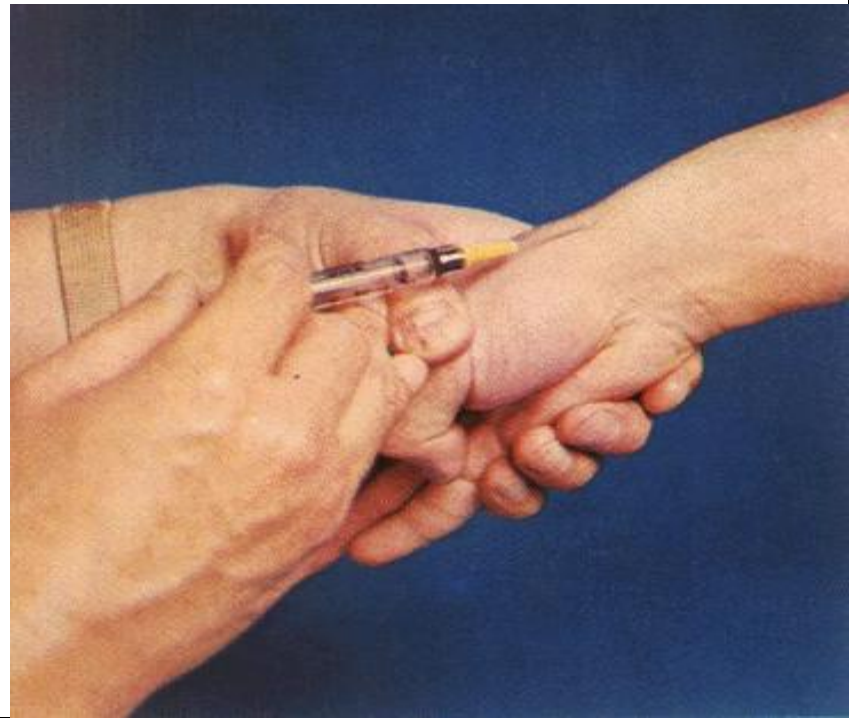
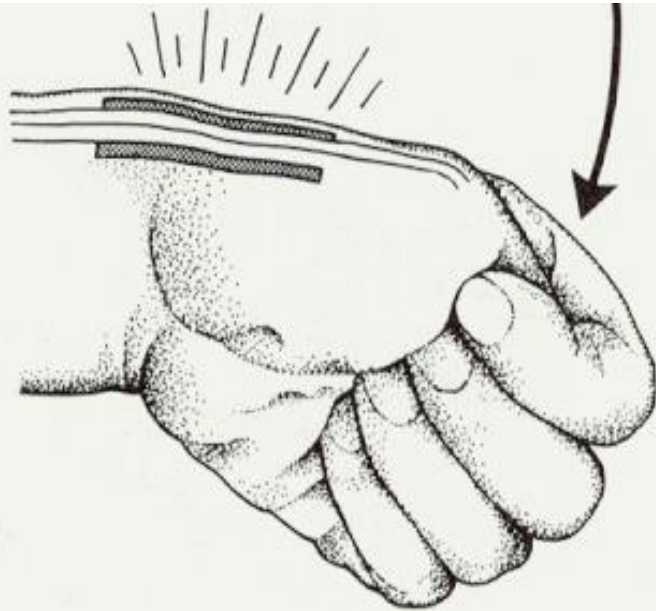
anatomical wrist - hot



De Quervain's Tenosynovitis



Area of Pain



How Are the Anti-Inflammatory Effects of Corticosteroids Mediated?

Steroids have beneficial anti-inflammatory effects through numerous mechanisms. Some of the most important are:

- **Decrease in neutrophil margination, migration, and accumulation at inflammatory sites.**
- **Inhibition of neutrophil and macrophage, phagocytosis, enzyme release, and pro-inflammatory cytokine production (especially interleukin-1 and tumor necrosis factor).**
- **Induction of lipocortin and lipomodulin, which decrease arachidonic acid synthesis with a corresponding decrease in prostaglandin and leukotriene production.**
- **Decrease T-cell proliferation and interleukin-2 synthesis and secretion.**

Disease Processes That Have an Indication at Some Time in Their Clinical Course for Corticosteroid Injection Therapy

- **Rheumatoid Arthritis**
- **Crystal deposition disease (Gout, CPPD / Pseudo-Gout)**
- **Systemic Lupus Erythematosous (SLE)**
- **Acute traumatic arthritis**
- **Osteoarthritis**
- **Shoulder Tendinitis / Bursitis**
- **Tietze's syndrome**
- **Seronegative Spondyloarthropathies**

Major Benefits of Intra-Synovial Corticosteroid Injections

- **Alleviate inflammation in a joint, bursa, or tendon sheath**
- **Avoid institution of systemic therapy**

Some of the General Indications for Corticosteroid Injection Therapy in Rheumatic Conditions

- **Isolated joint inflammation in patients with polyarticular disease out of proportion to other joints (after joint infection is ruled out)**
- **Recurrent Joint Effusion**
- **Tendon-Sheath inflammation (Tenosynovitis)**
- **Bursitis or Tendinitis / Tendonitis - refractory to NSAIDs**
- **Noninfectious Monarthrititis**
- **Soft tissue Trigger points**

Contraindications to Intrasynovial Corticosteroid Injections

The physician must be aware of the contraindications to corticosteroid injection (whether relative or absolute) in order to decide if the injection is truly in the best interests of the patient. The following situations require serious consideration before injecting corticosteroid.

- **Priarticular and Articular Sepsis**
- **Bacteremia**
- **Joint instability**
- **Inaccessible joints**
- **Lack of response to previous injections**
- **Blood-Clotting disorders**
- **Intra-Articular fracture**

Type and Amount of Corticosteroid should be Injected Into a Joint, Bursa, or Tendon Sheath (Controversial)

It is generally recommended that short-acting or medium-acting corticosteroid be injected into tendon sheaths, since they are more soluble and cause less soft tissue atrophy or chance of tendon rupture.

The longest-acting, least soluble corticosteroid preparations are typically injected into inflamed joints since they tend to be more efficacious.

Optimal Dose of Corticosteroid to be Injected Into Synovia-Lined Spaces

The dose of corticosteroid to be injected into Synovia-lined cavities depends on the:

- **Size of the joint**
- **Degree of inflammation**
- **Amount of fluid - present**
- **Concentration of corticosteroid used**

Volume of Corticosteroid Can be Safely Injected Into a Joint

The volume of corticosteroid that can be safely injected depends on the size of the joint. The physician must be aware of the volume to be injected into the joint, and all attempts should be made to avoid overdilatation of the surrounding joint capsule.

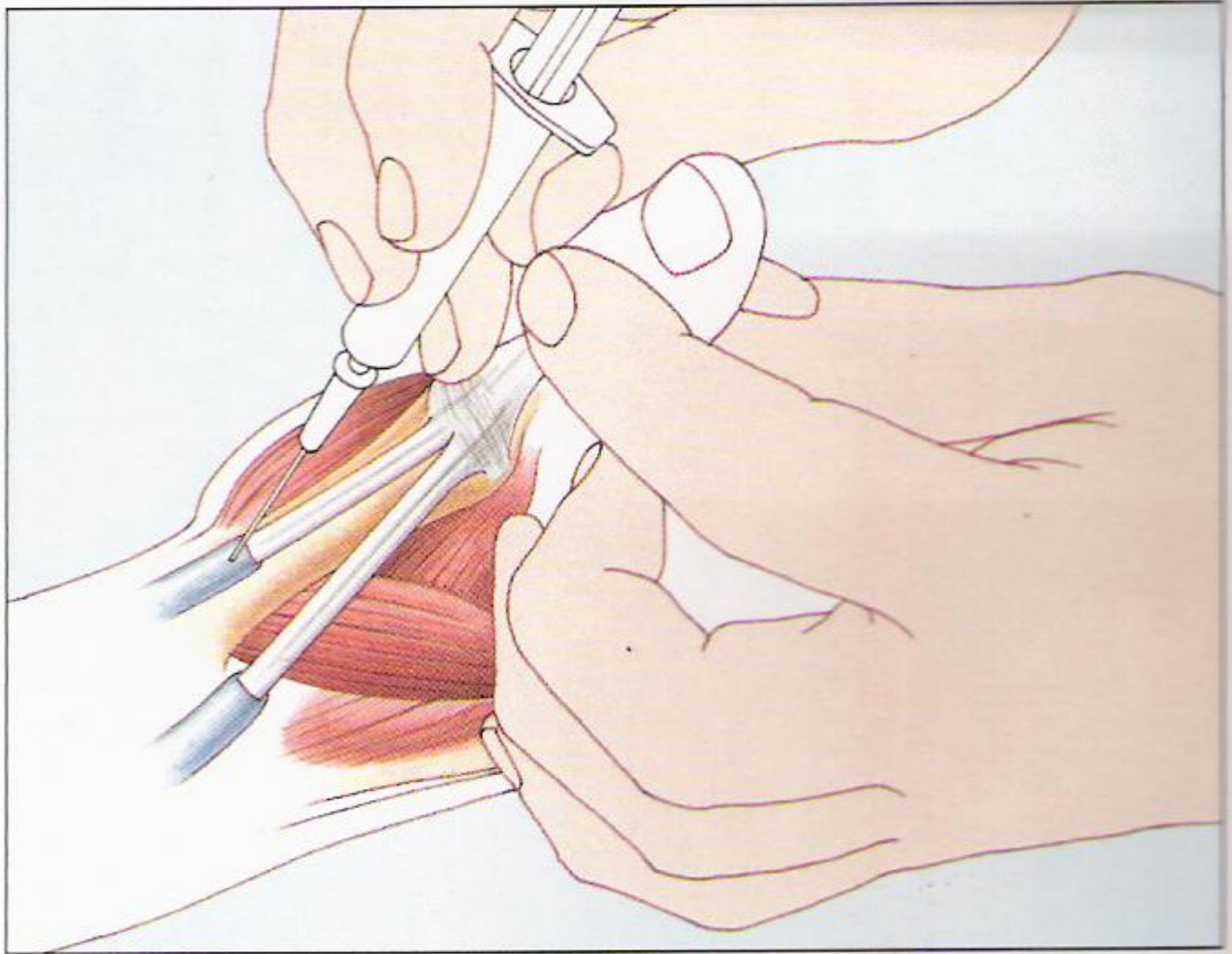
<u>SIZE OF JOINT</u>	<u>VOLUME (ML)</u>
LARGE (Knees, Ankles, Shoulders)	1 - 2
MEDIUM (Elbows, Wrists)	0.5 - 1
SMALL [Interphalangeal (IPs), Metacarpo-phalangeal (MCPs)]	0.1 - 0.5

Guidelines for the Appropriate Dose of Corticosteroid - to be Injected

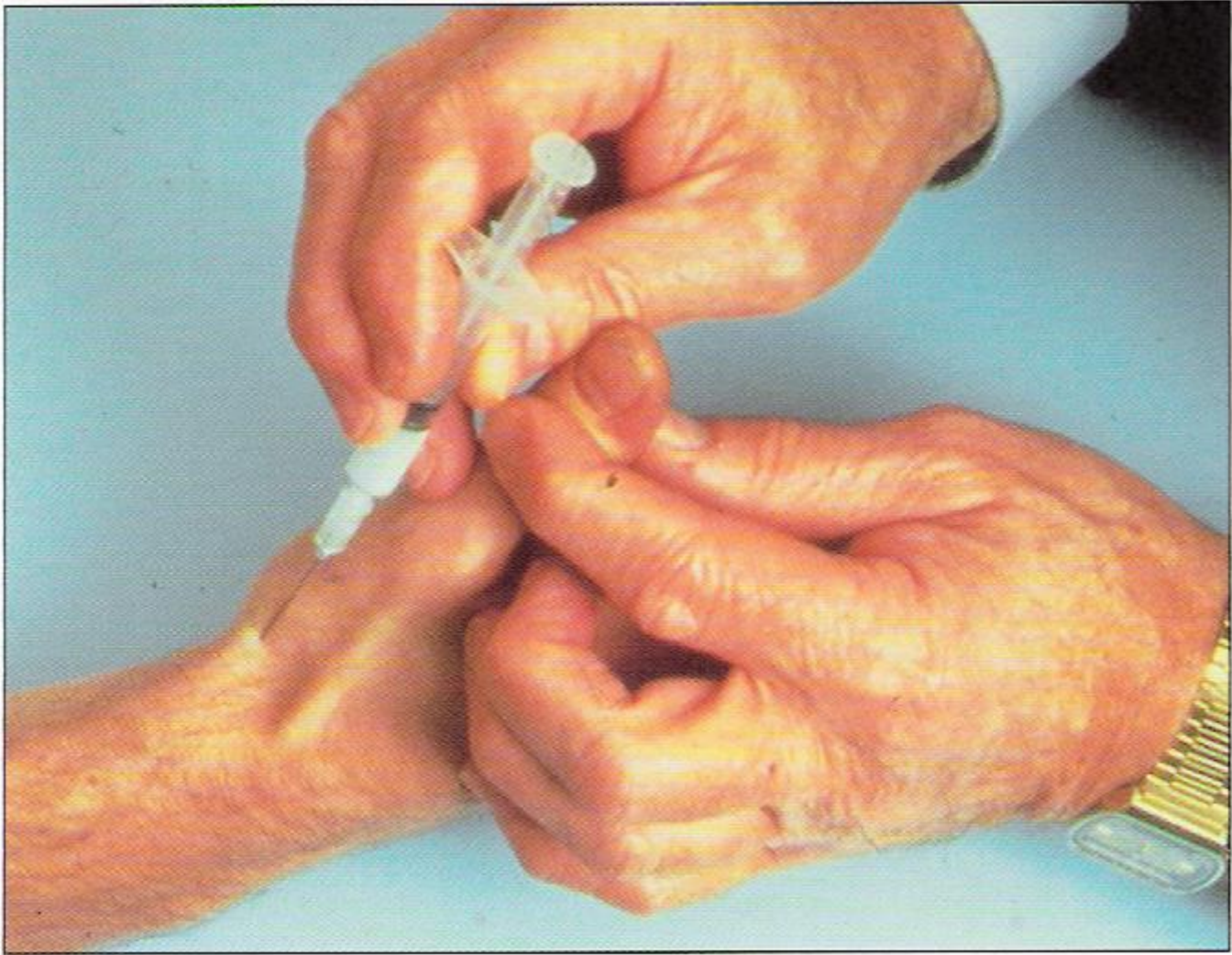
SITE	PREDNISON EQUIVALENT DOSE (MG)
Bursa	10 - 20
Tendon-Sheath	10 - 20
Small joints of hands and feet	5 - 15
Medium sized joints (Wrist, Elbow)	15 - 25
Large joints (Knee, Shoulder, Ankle)	20 - 50

Possible Sequelae of Intra-Articular and Soft Tissue Corticosteroid Injections

1. Tendon rupture.
2. Iatrogenic infection (rare).
3. Deterioration of joints, evidenced radiologically:
Steroid arthropathy, Charcot-like Arthropathy, Osteonecrosis.
4. Nerve damage.
5. Steroid microcrystal-induced synovitis (postinjection flare).
6. Hypopigmentation.
7. Tissue atrophy and fat necrosis.
8. Pancreatitis (rare).
9. Diabetic decompensation (rare).

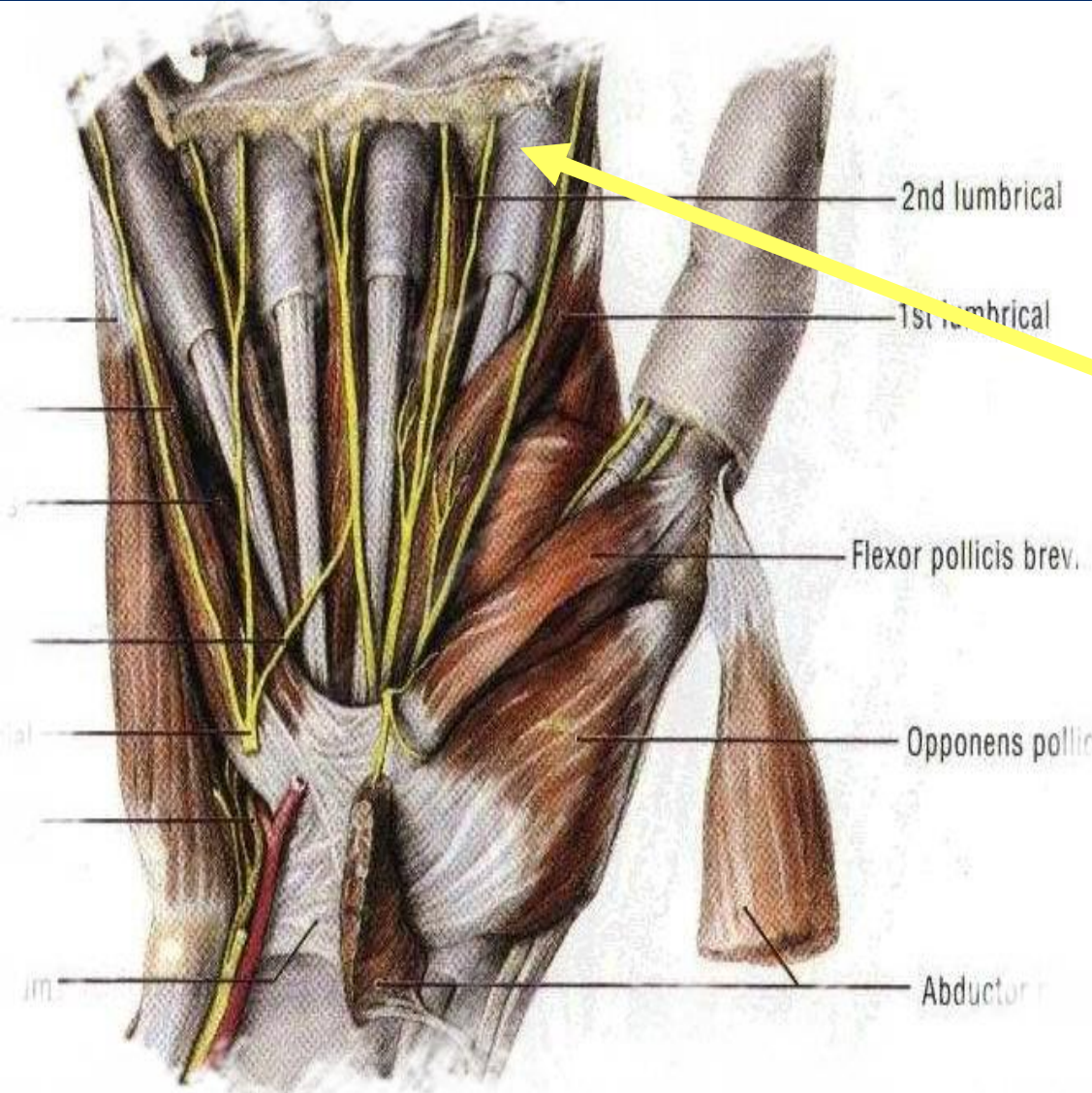


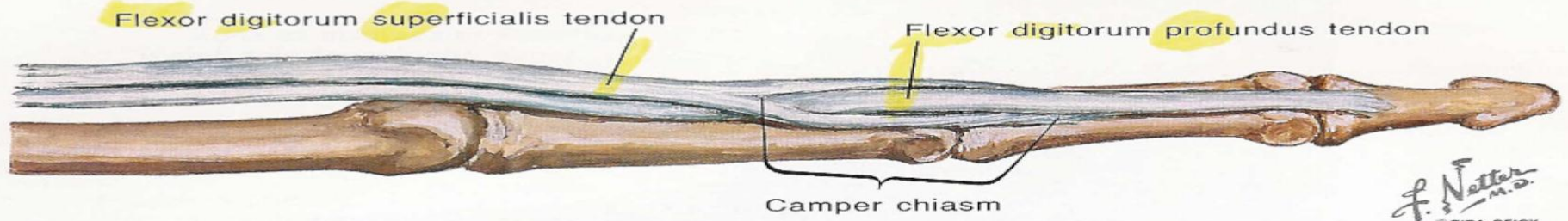




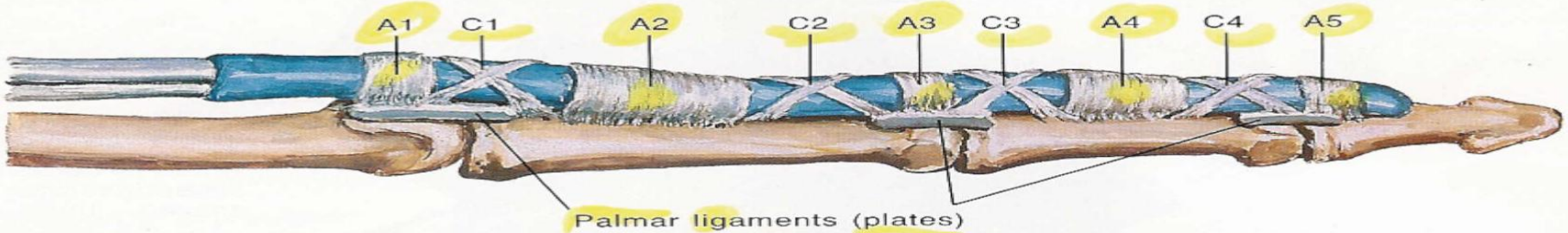


Trigger Finger





Flexor digitorum superficialis tendon runs palmar to flexor digitorum profundus tendon but splits over proximal phalanx to allow passage of flexor digitorum profundus tendon (Camper chiasm). Two slips of flexor digitorum superficialis tendon unite and interlace at insertion on middle phalanx dorsal to flexor digitorum profundus tendon. In injury involving zone II, one or two slips of flexor digitorum superficialis tendon and flexor digitorum profundus tendon may be divided and need careful suturing



Flexor digitorum superficialis and profundus tendons are encased in synovial sheath bound to bones of digits by fibroosseous sheaths made up of alternating strong annular (A) and weaker cruciate (C) pulleys. When sheath opened for repair of severed tendon, opening should be in zones of cruciate pulleys because annular pulleys difficult to repair

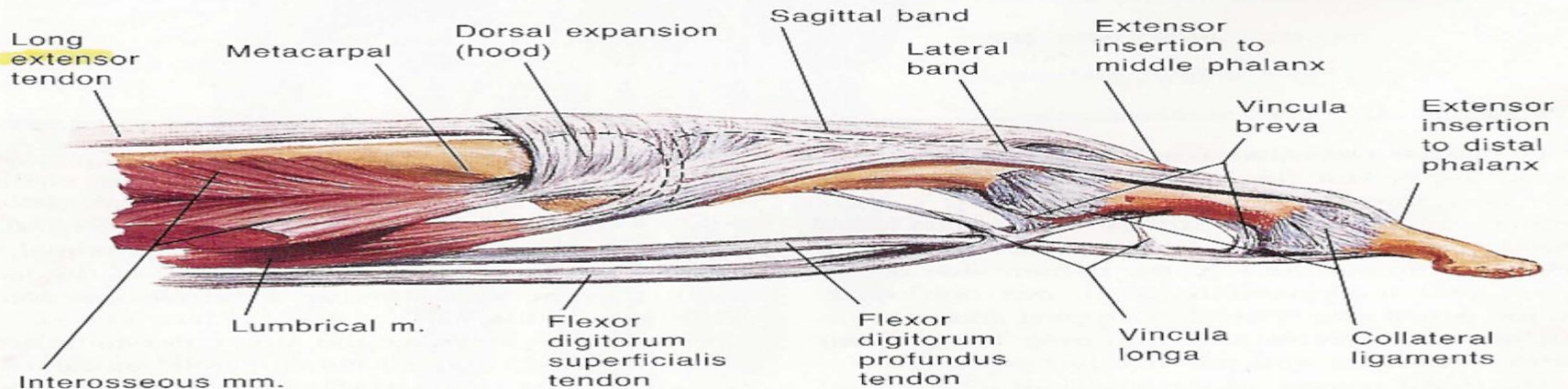
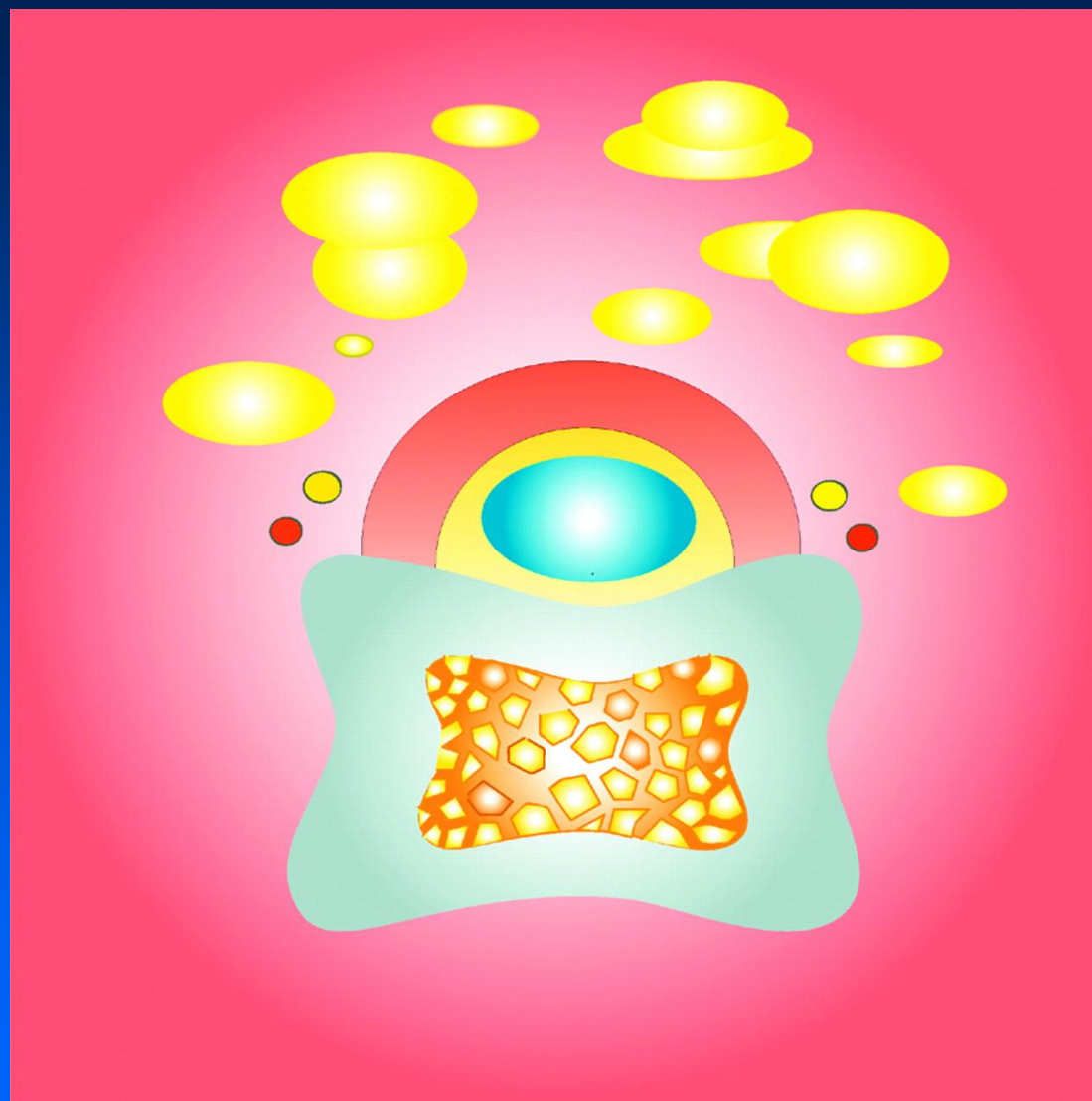


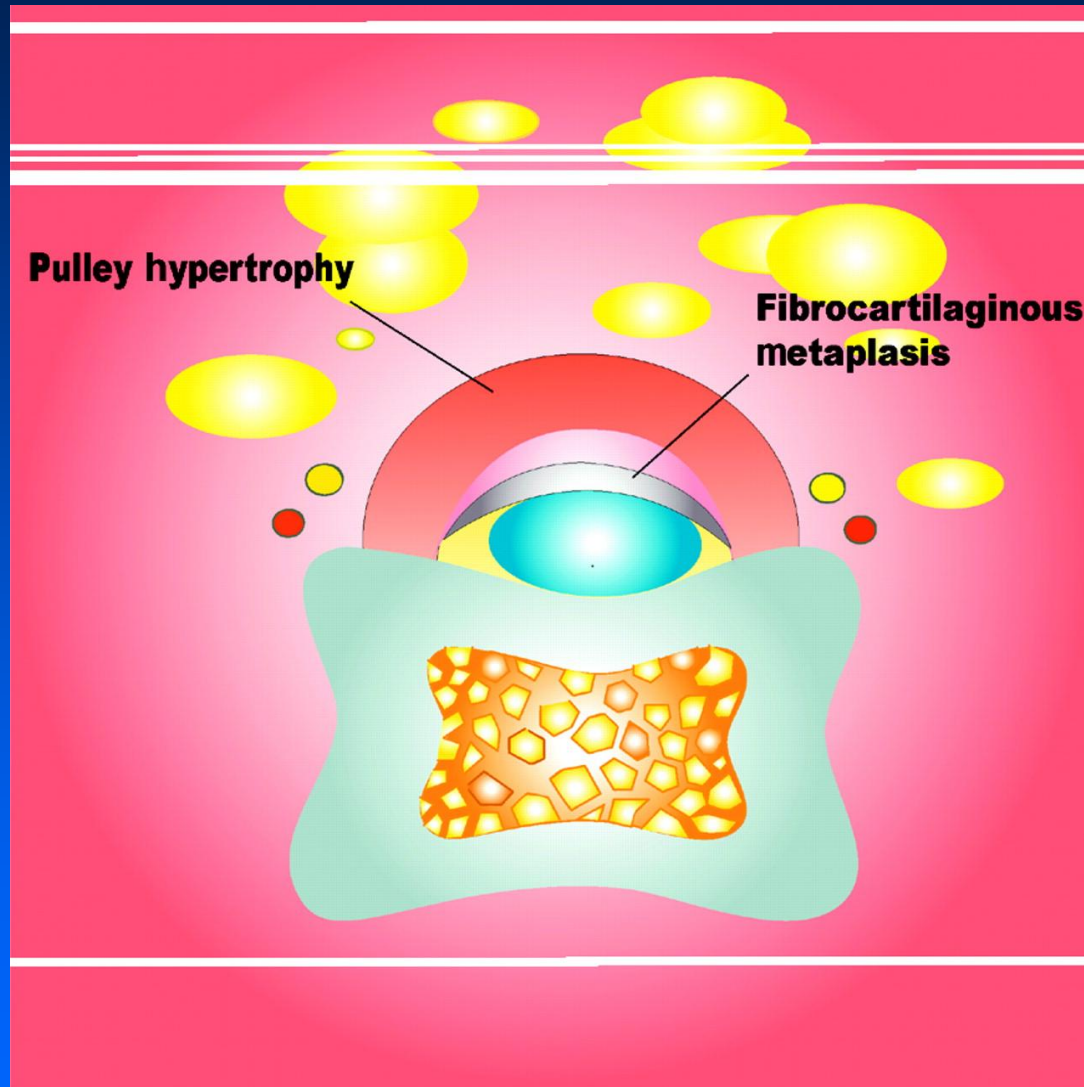
Fig 1 Cross sectional view of flexor tendon passing through a normal A1 pulley



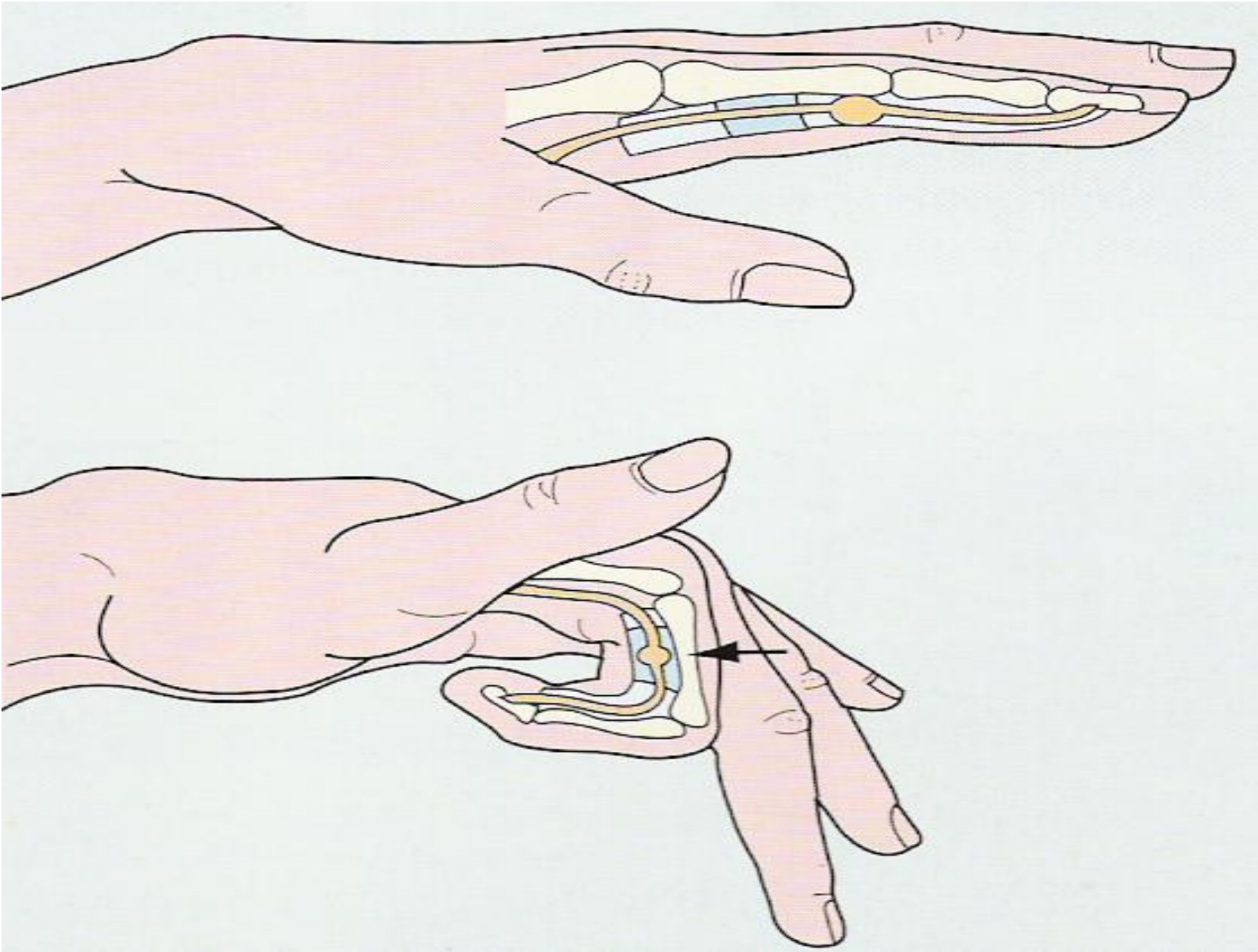
Akhtar, S. et al. BMJ 2005;331:30-33

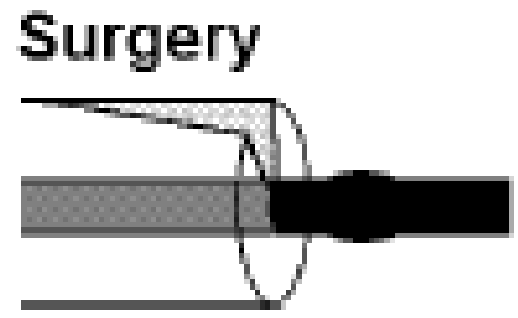
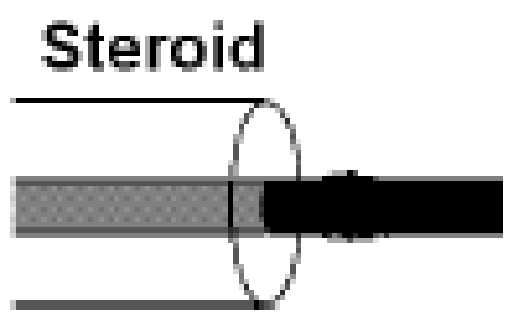
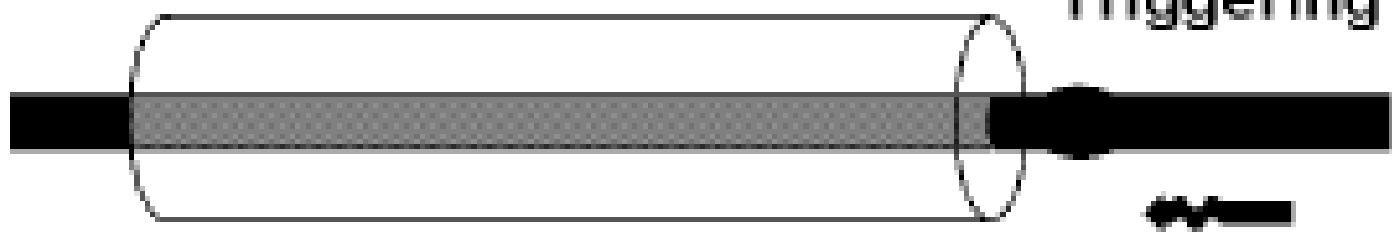
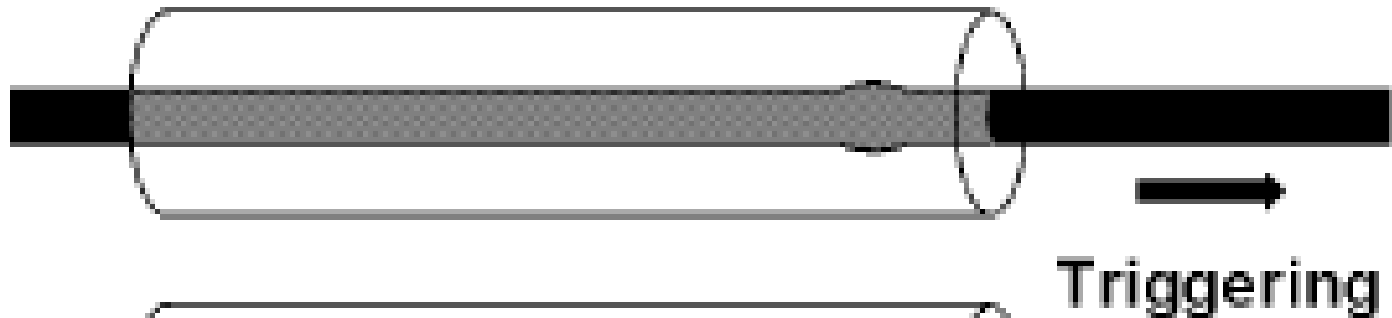
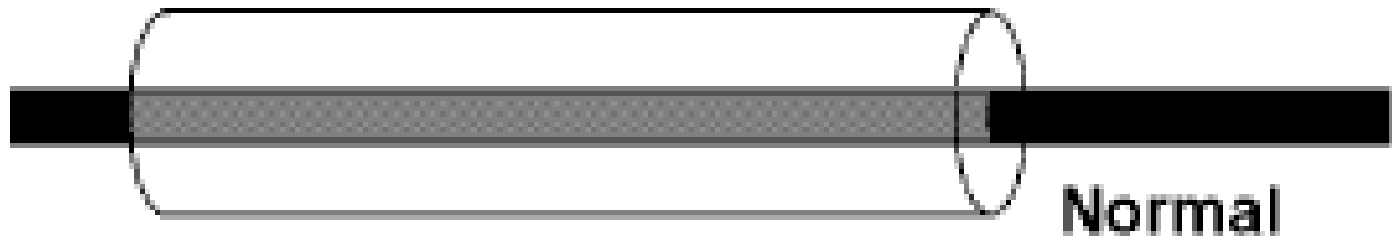
BMJ

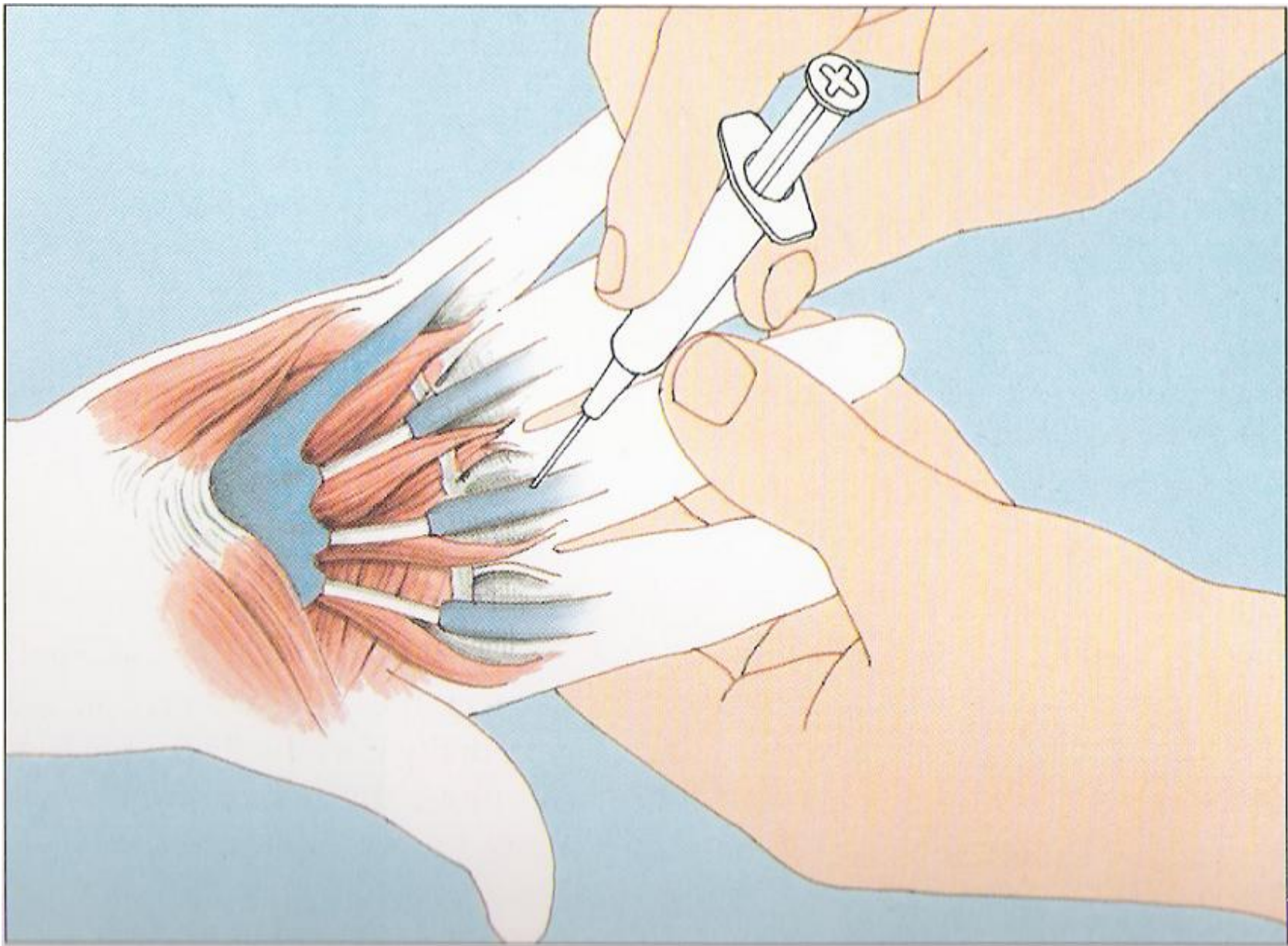
Fig 2 Cross sectional view of flexor tendon passing through an A1 pulley that has undergone changes associated with trigger finger disease



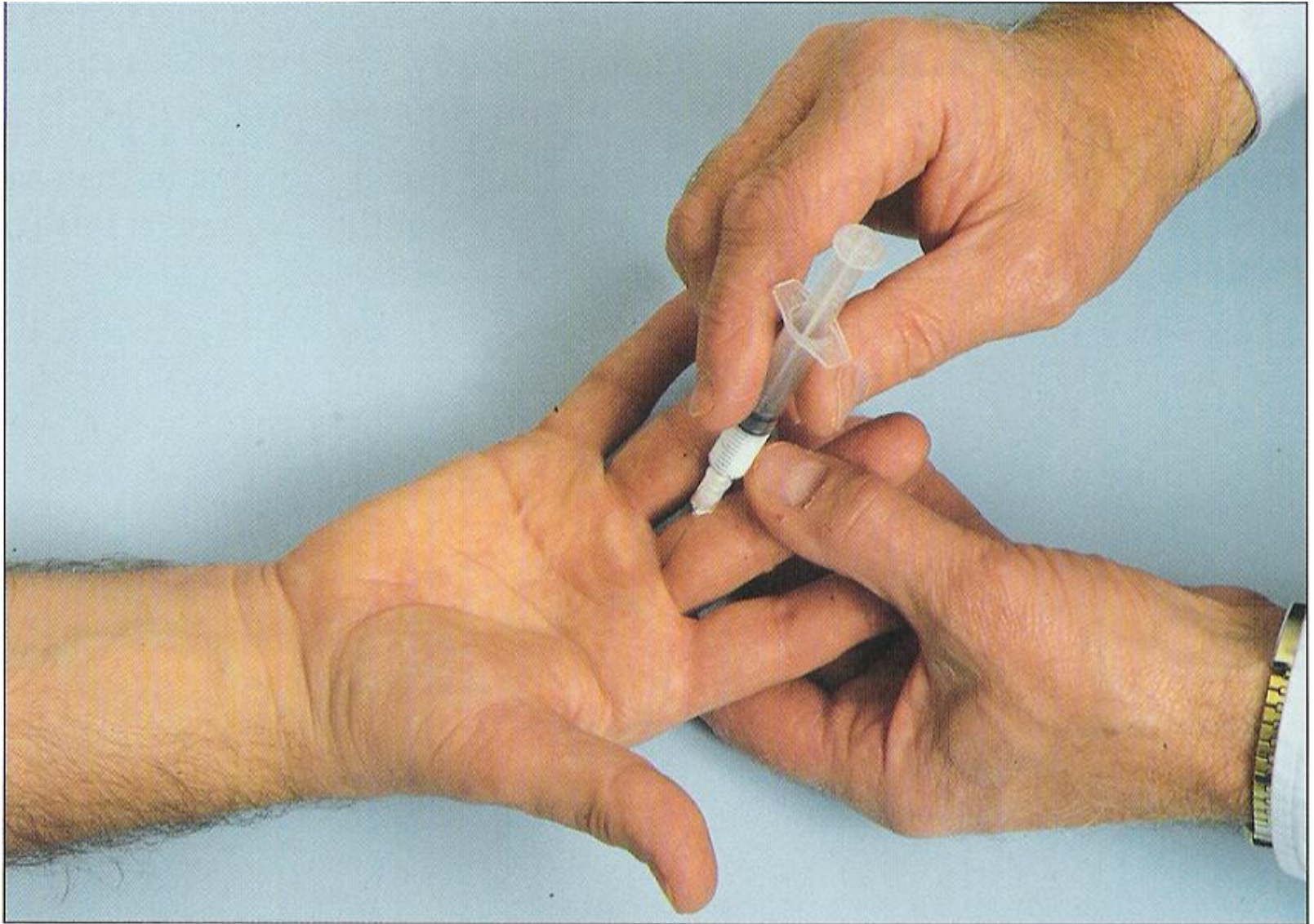
Akhtar, S. et al. BMJ 2005;331:30-33



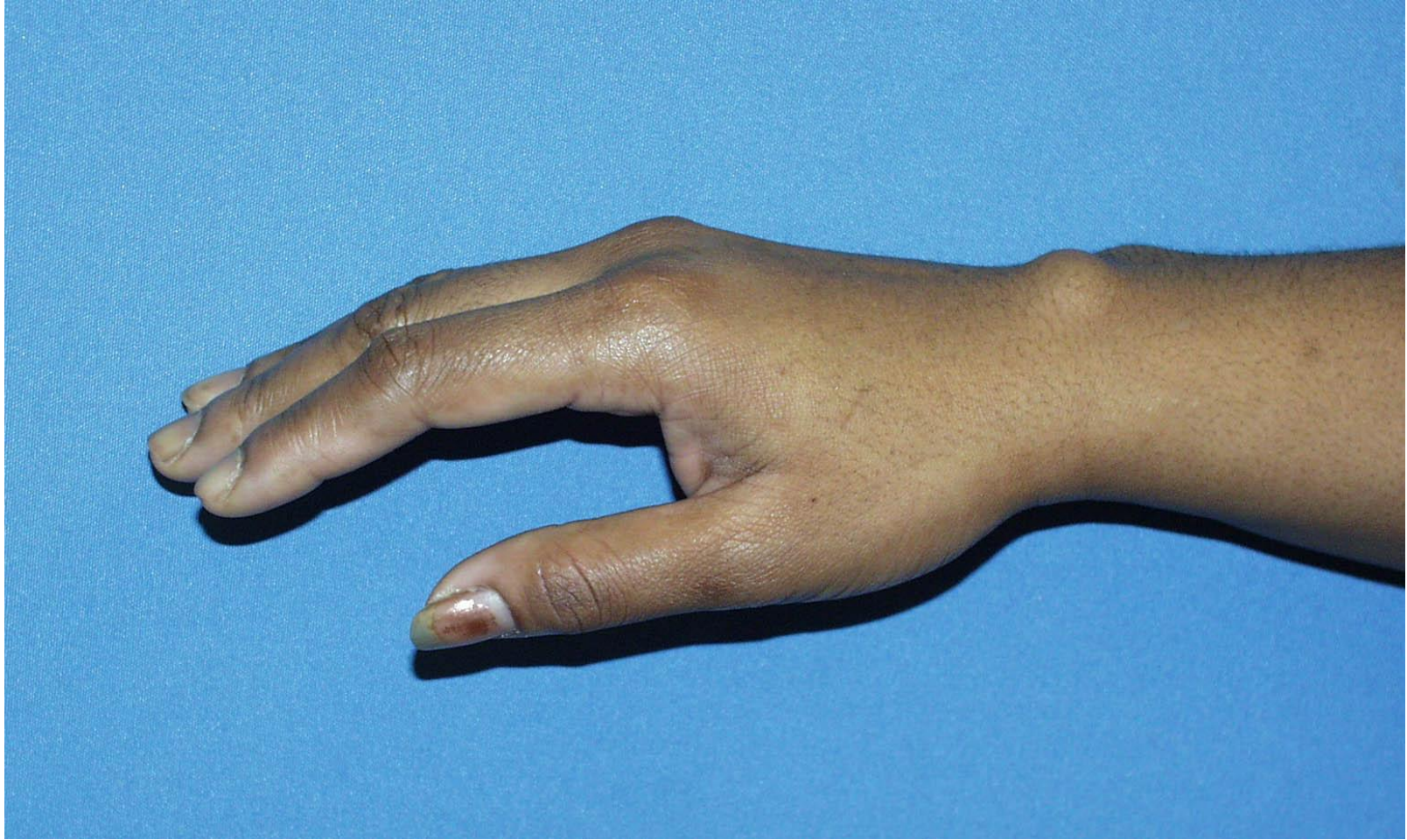














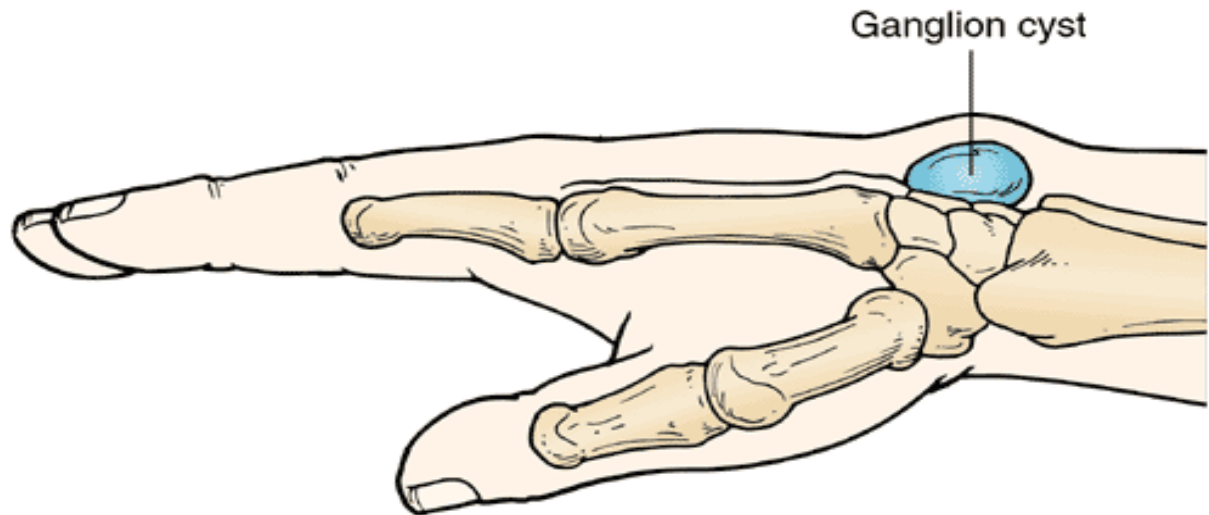


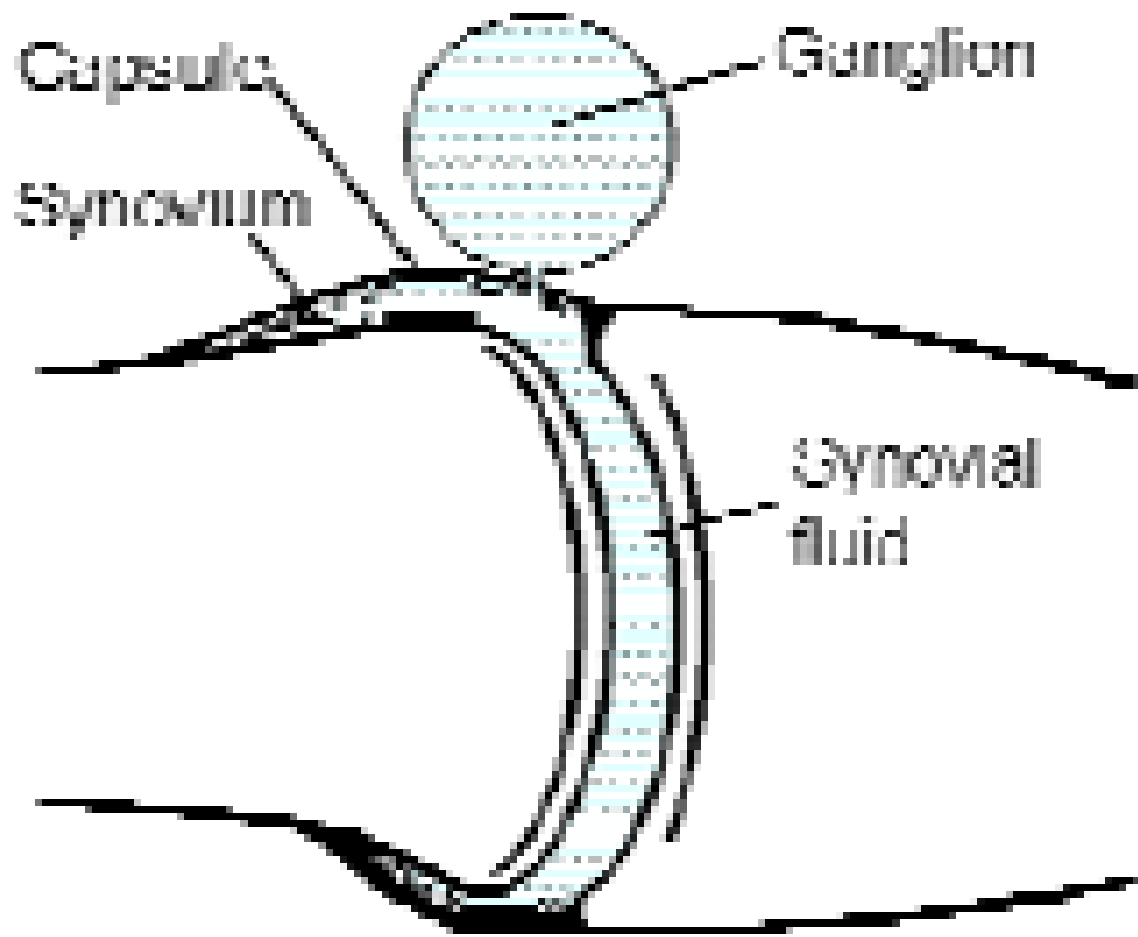


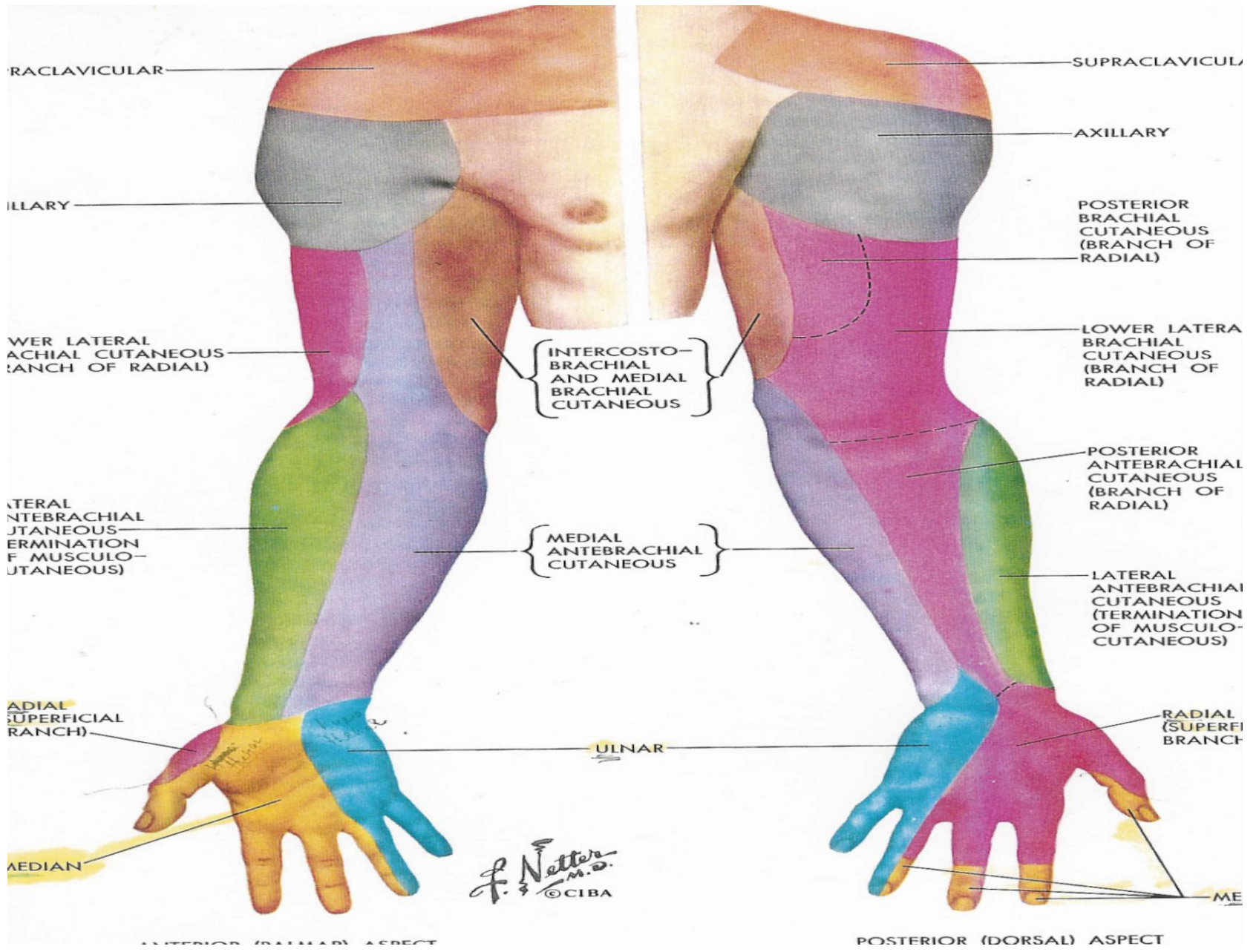
Ganglion



Ganglion Cyst







CLAVICULAR

SUPRACLAVICULAR

AXILLARY

AXILLARY

LOWER LATERAL BRACHIAL CUTANEOUS (BRANCH OF RADIAL)

POSTERIOR BRACHIAL CUTANEOUS (BRANCH OF RADIAL)

INTERCOSTO-BRACHIAL AND MEDIAL BRACHIAL CUTANEOUS

LOWER LATERAL BRACHIAL CUTANEOUS (BRANCH OF RADIAL)

LATERAL ANTEBRACHIAL CUTANEOUS (TERMINATION OF MUSCULO-CUTANEOUS)

MEDIAL ANTEBRACHIAL CUTANEOUS

POSTERIOR ANTEBRACHIAL CUTANEOUS (BRANCH OF RADIAL)

LATERAL ANTEBRACHIAL CUTANEOUS (TERMINATION OF MUSCULO-CUTANEOUS)

RADIAL (SUPERFICIAL BRANCH)

ULNAR

RADIAL (SUPERFICIAL BRANCH)

MEDIAN

F. Netter M.D.
© CIBA

ME

ANTERIOR (PALMAR) ASPECT

POSTERIOR (DORSAL) ASPECT

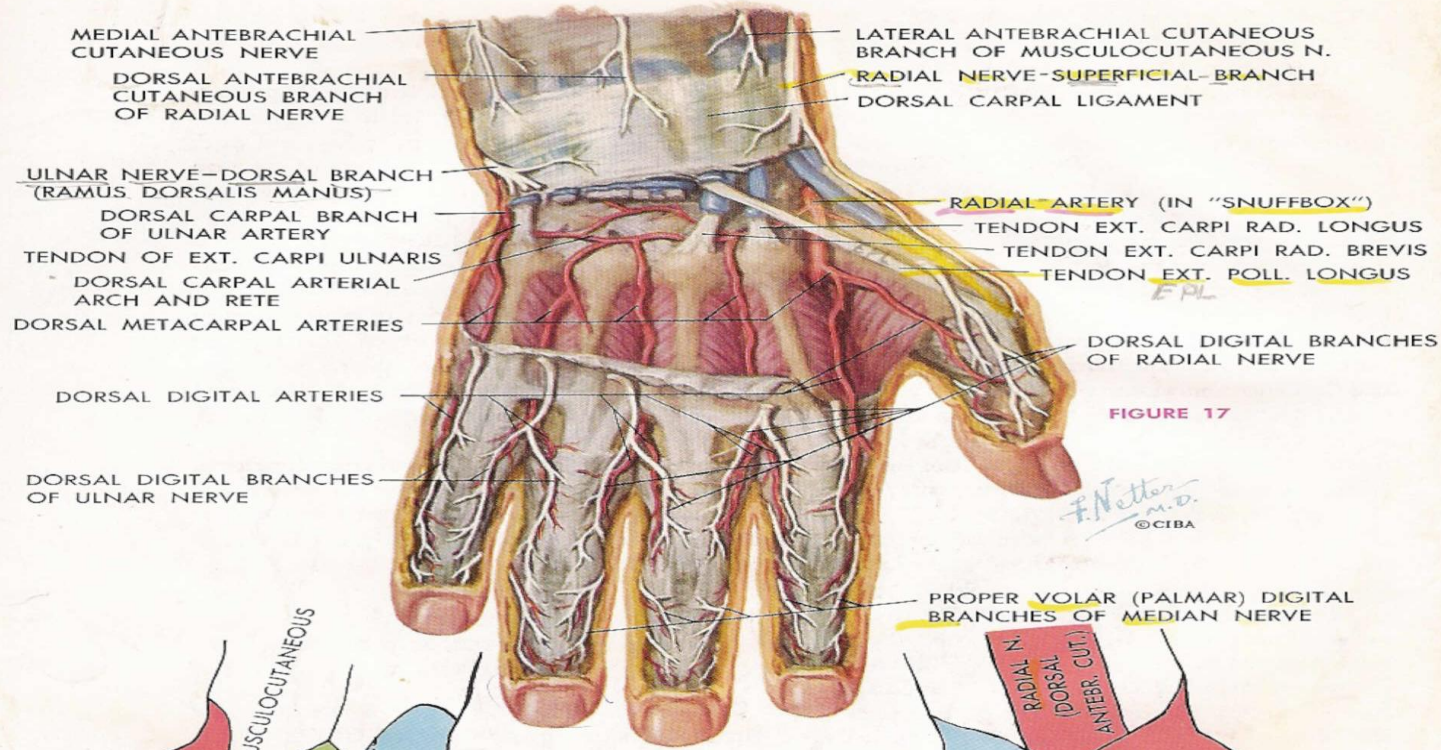


FIGURE 17

F. Netter M.D.
© CIBA

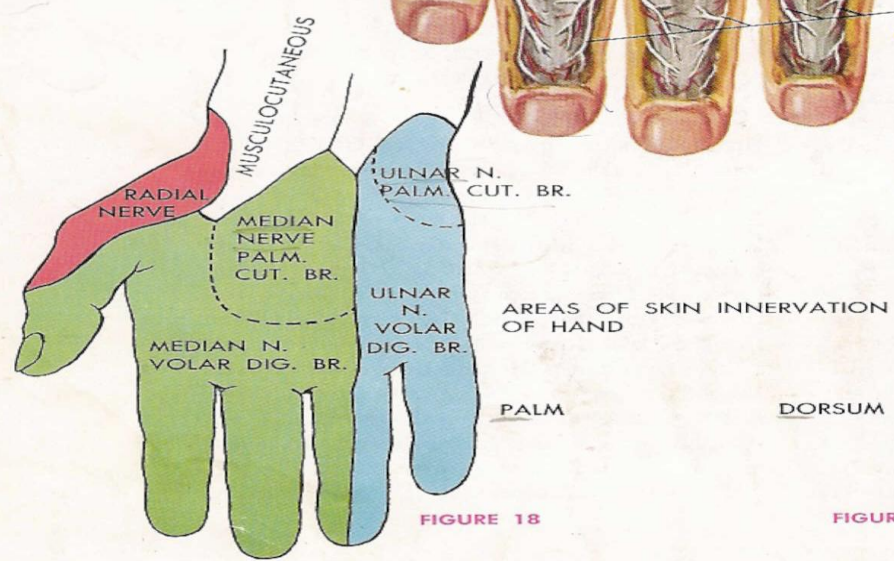


FIGURE 18

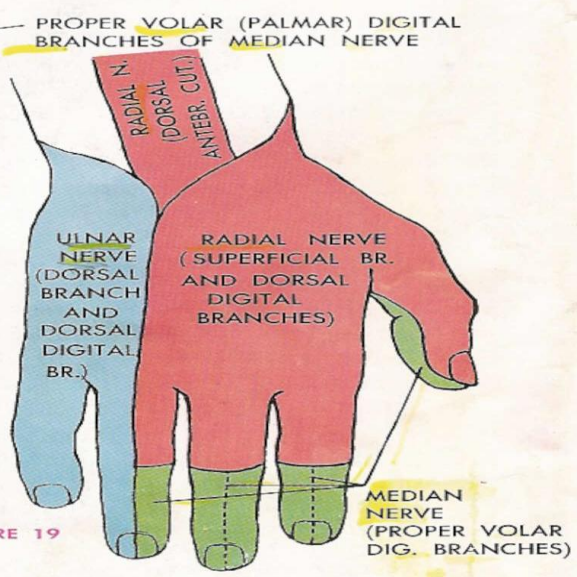


FIGURE 19

DORSUM



Palmar carpal
ligament

Median nerve

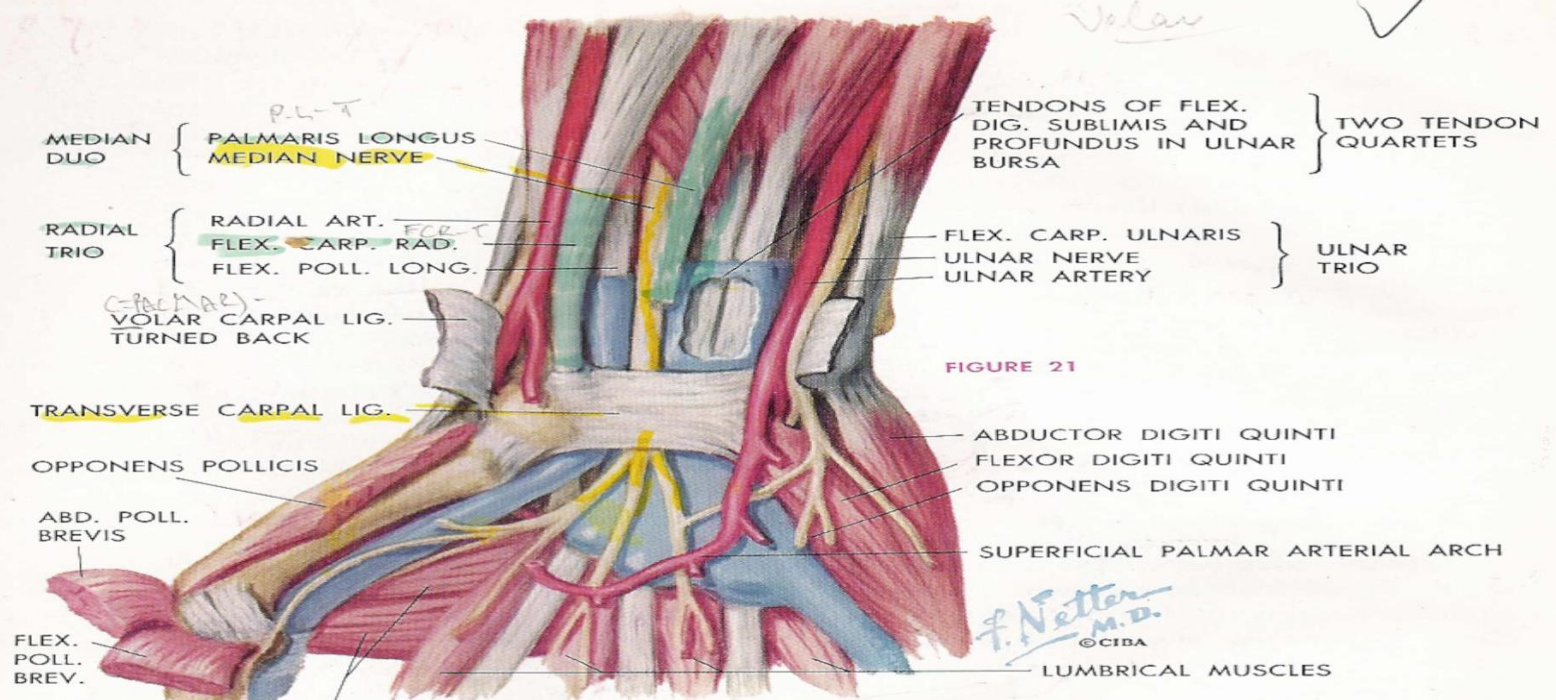


FIGURE 21

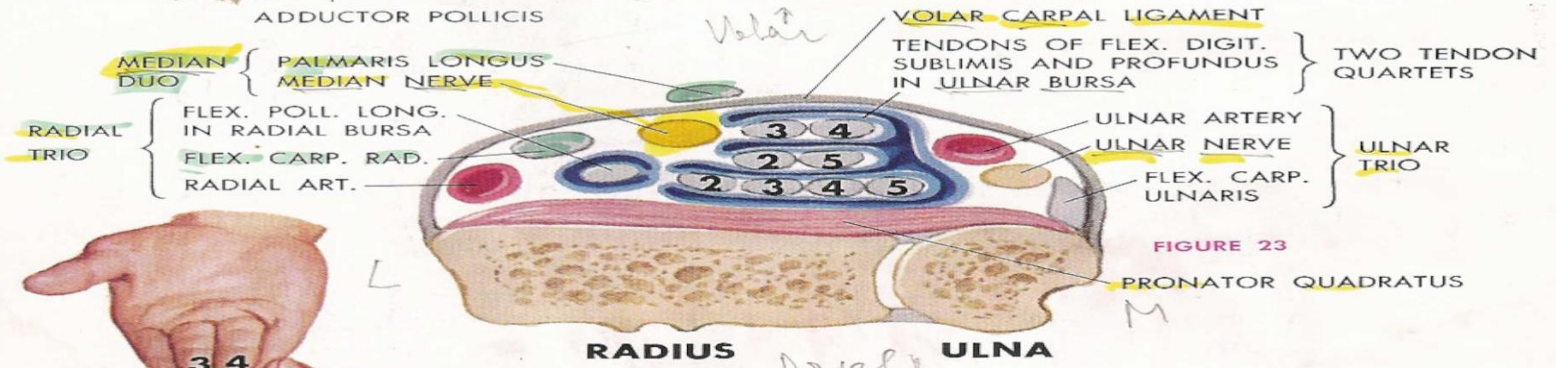
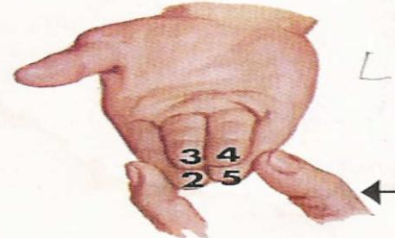


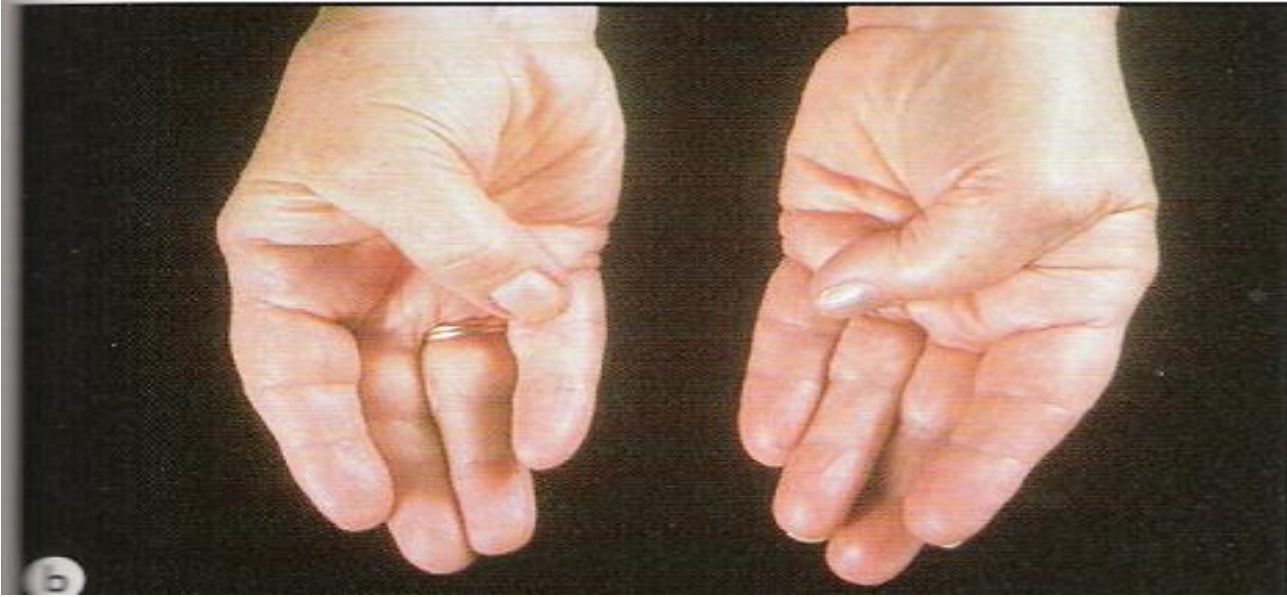
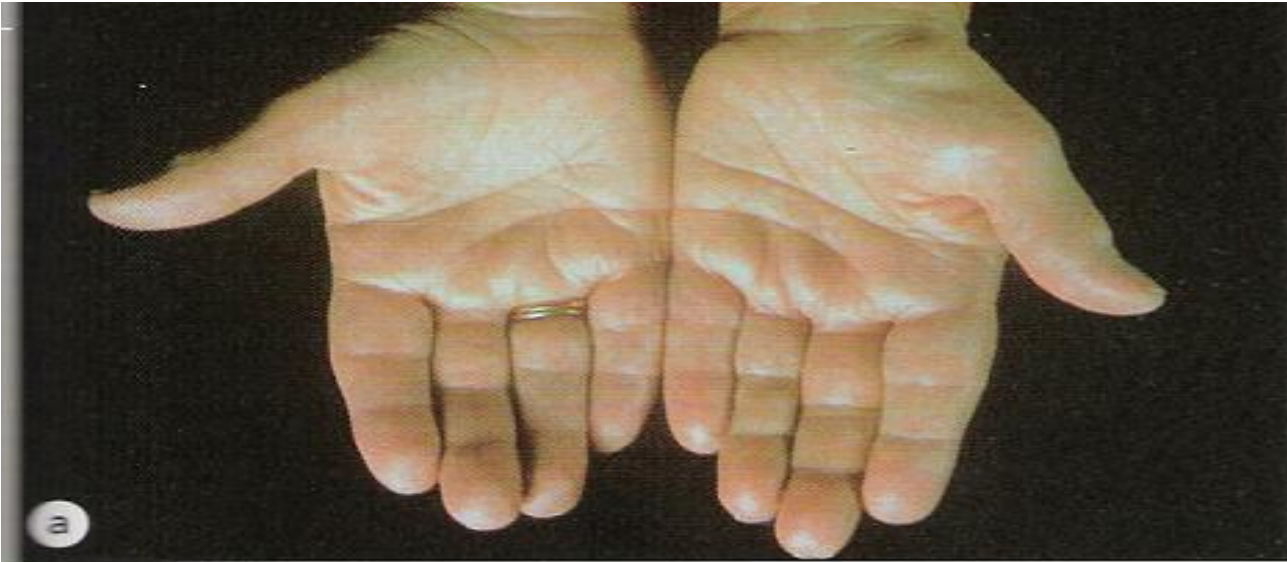
FIGURE 23



← SIMPLE METHOD OF DEMONSTRATING ARRANGEMENT OF SUBLIMIS TENDONS AT WRIST.



Median nerve is compressed at the wrist, resulting in numbness or pain

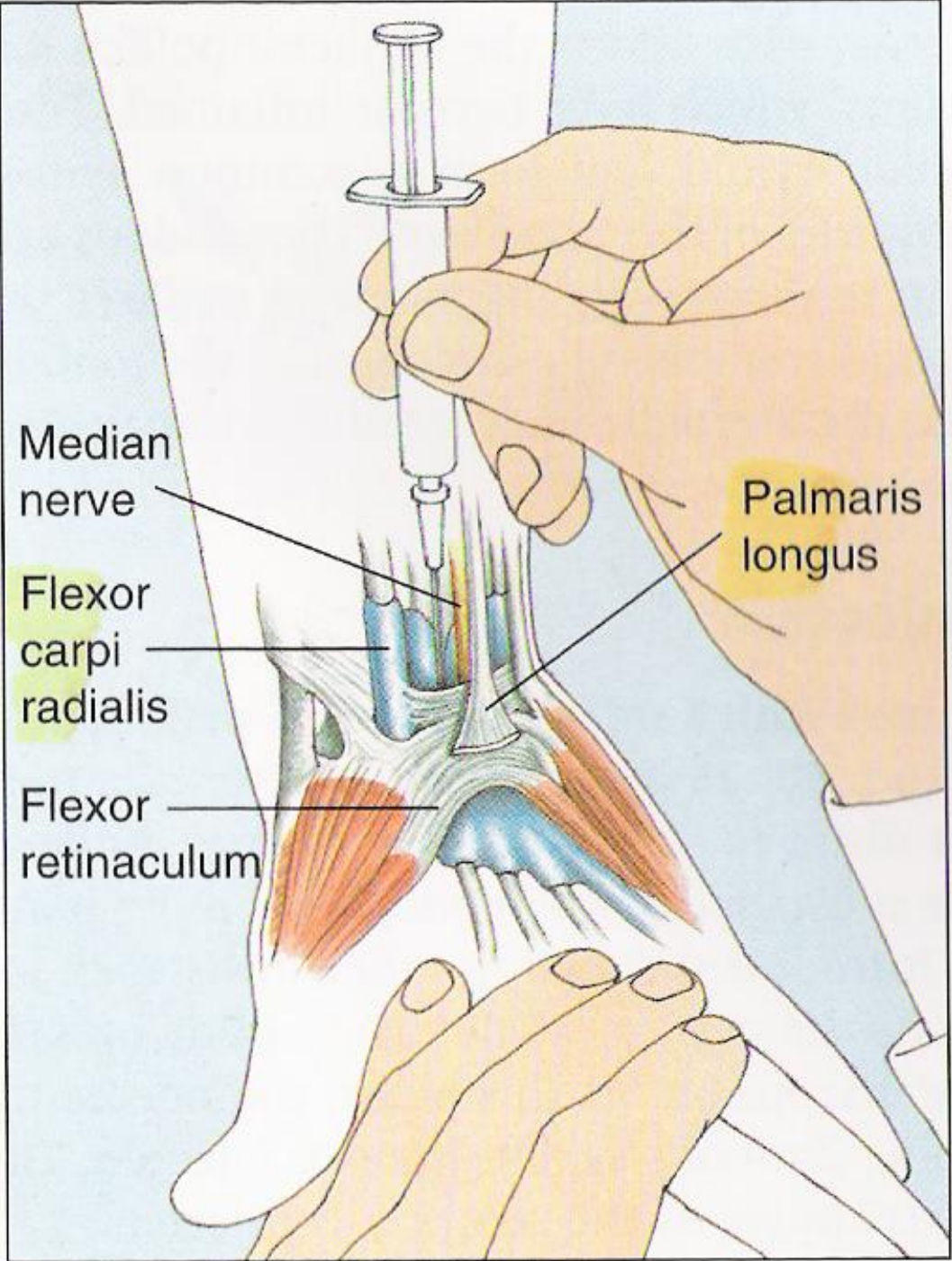


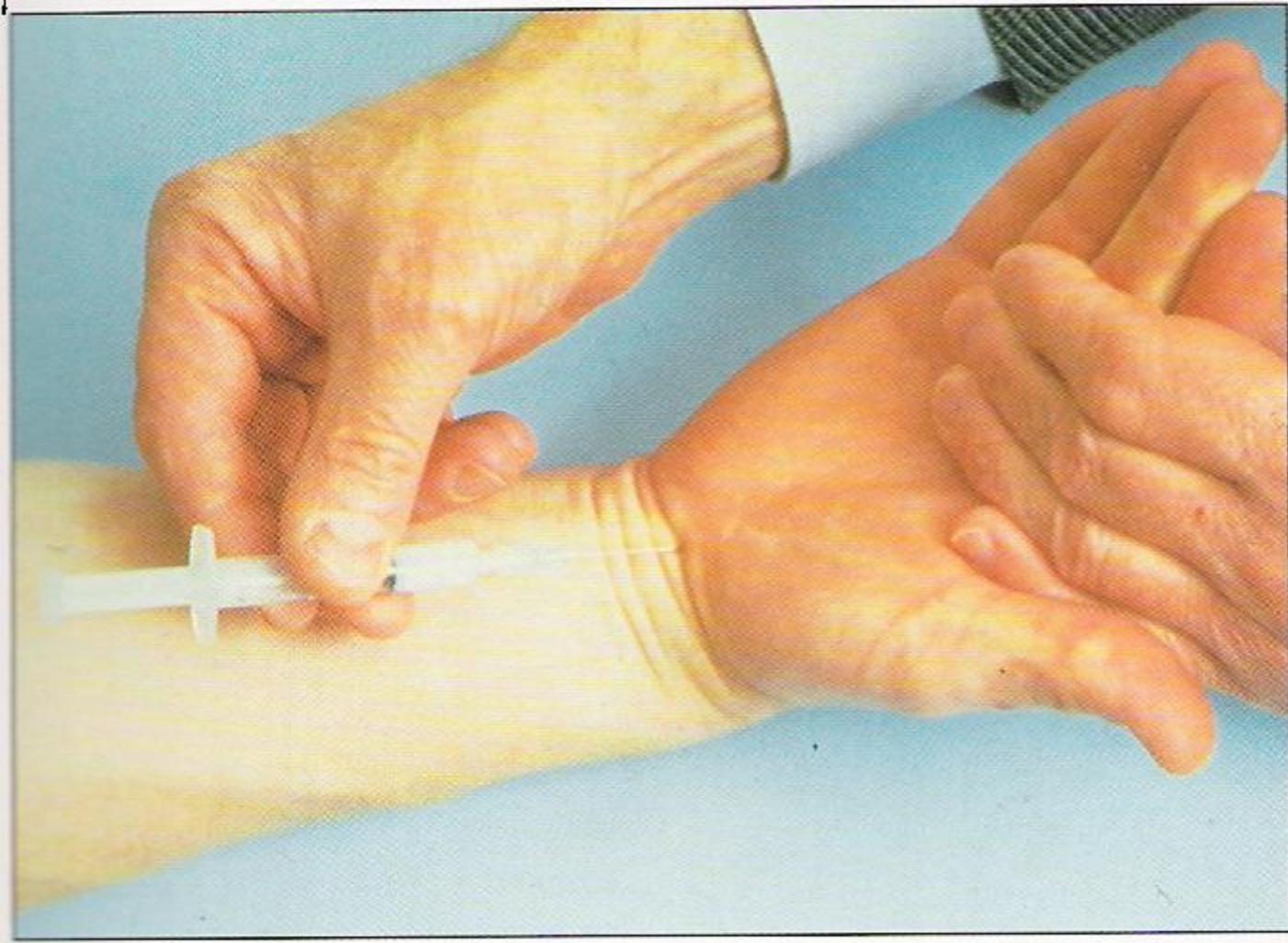


Wrist rest
mouse pad

Wrist splint

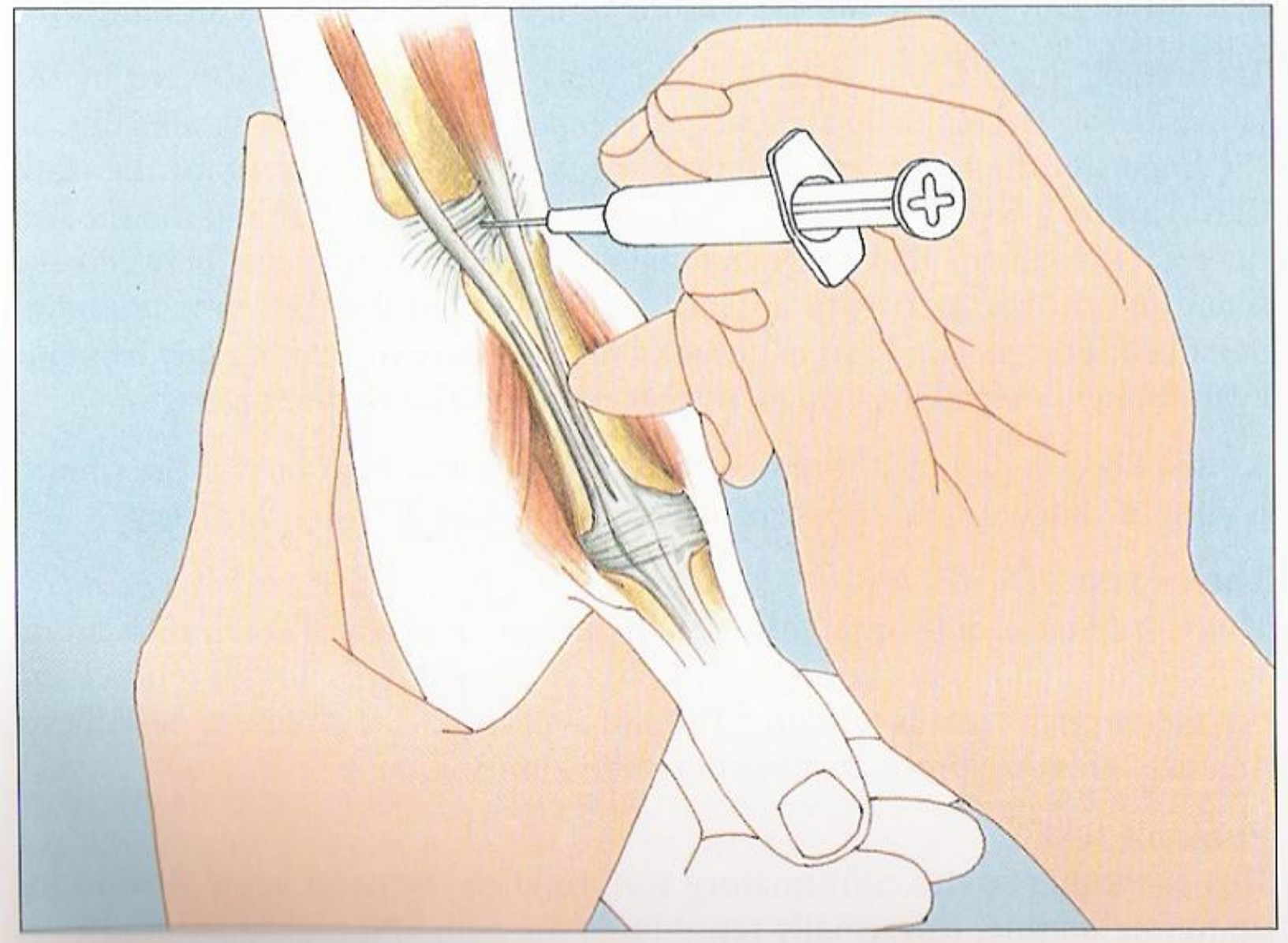


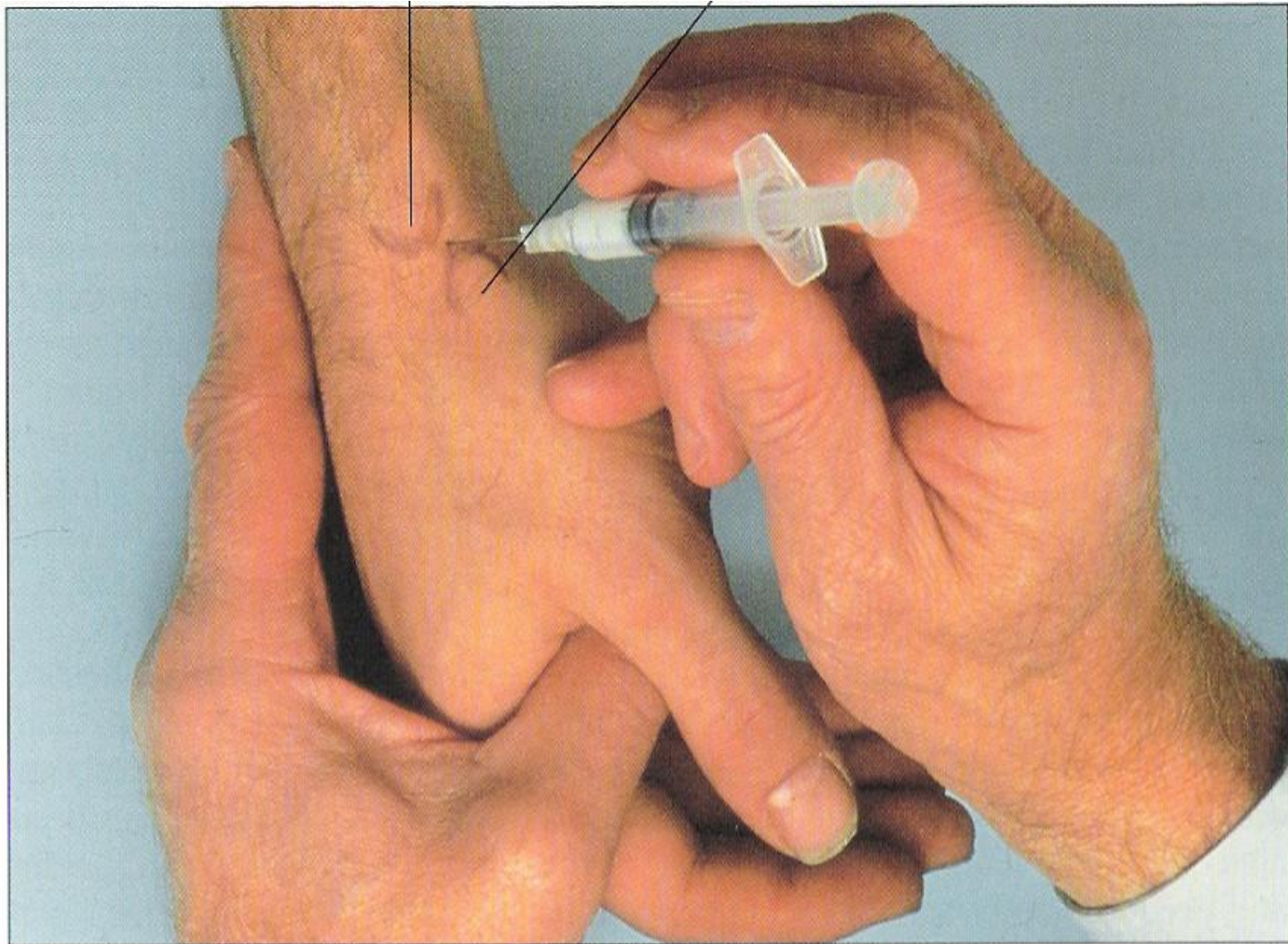


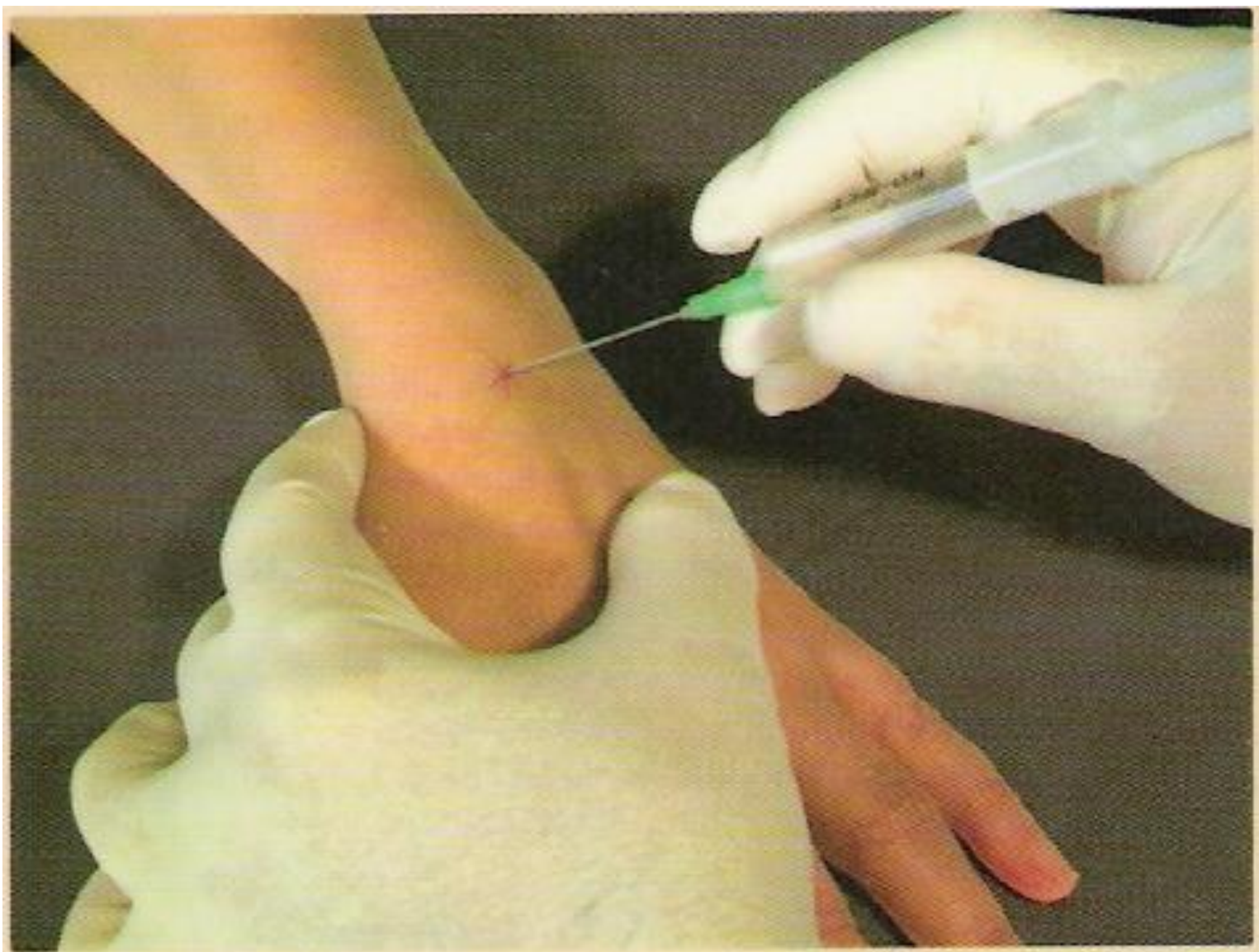


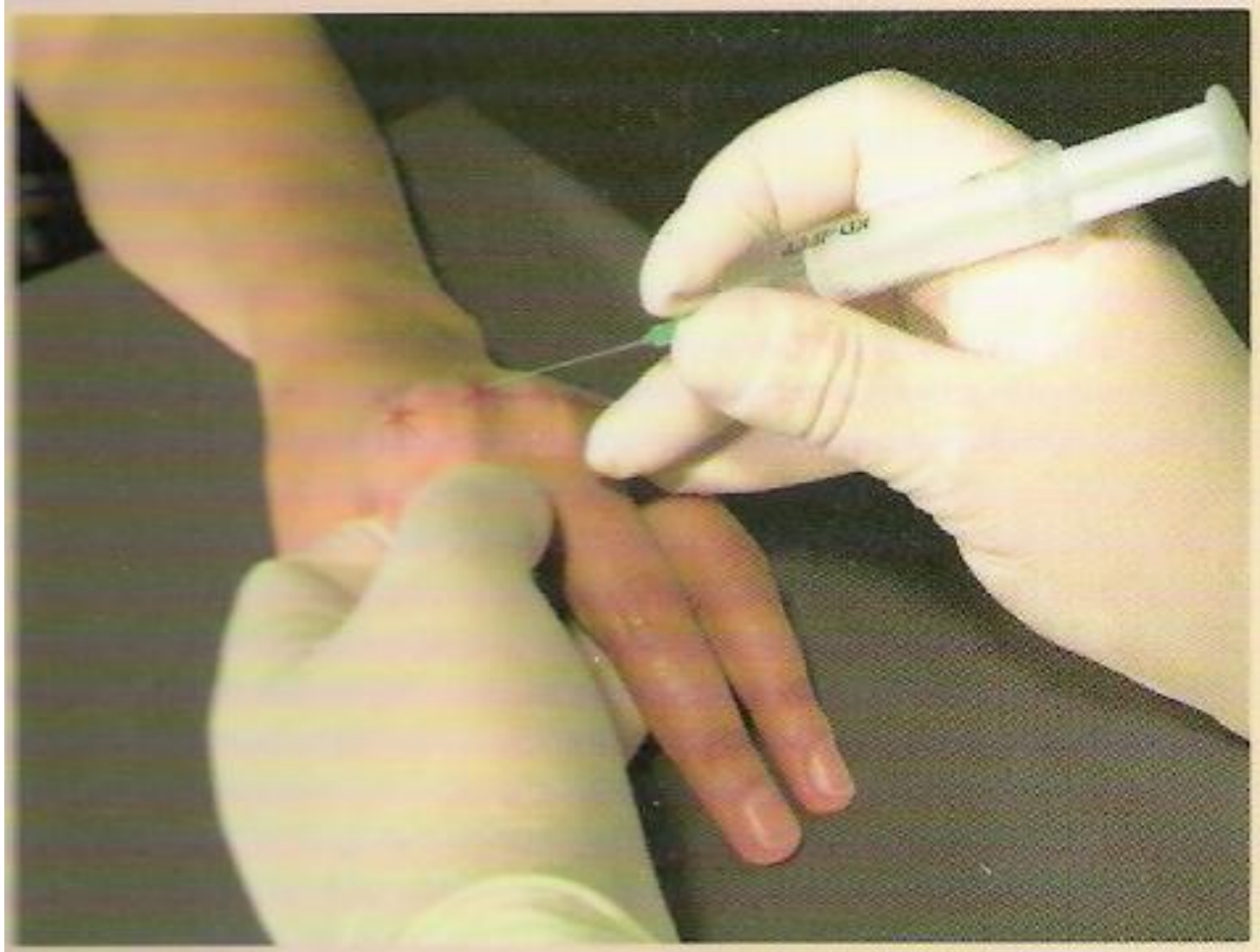




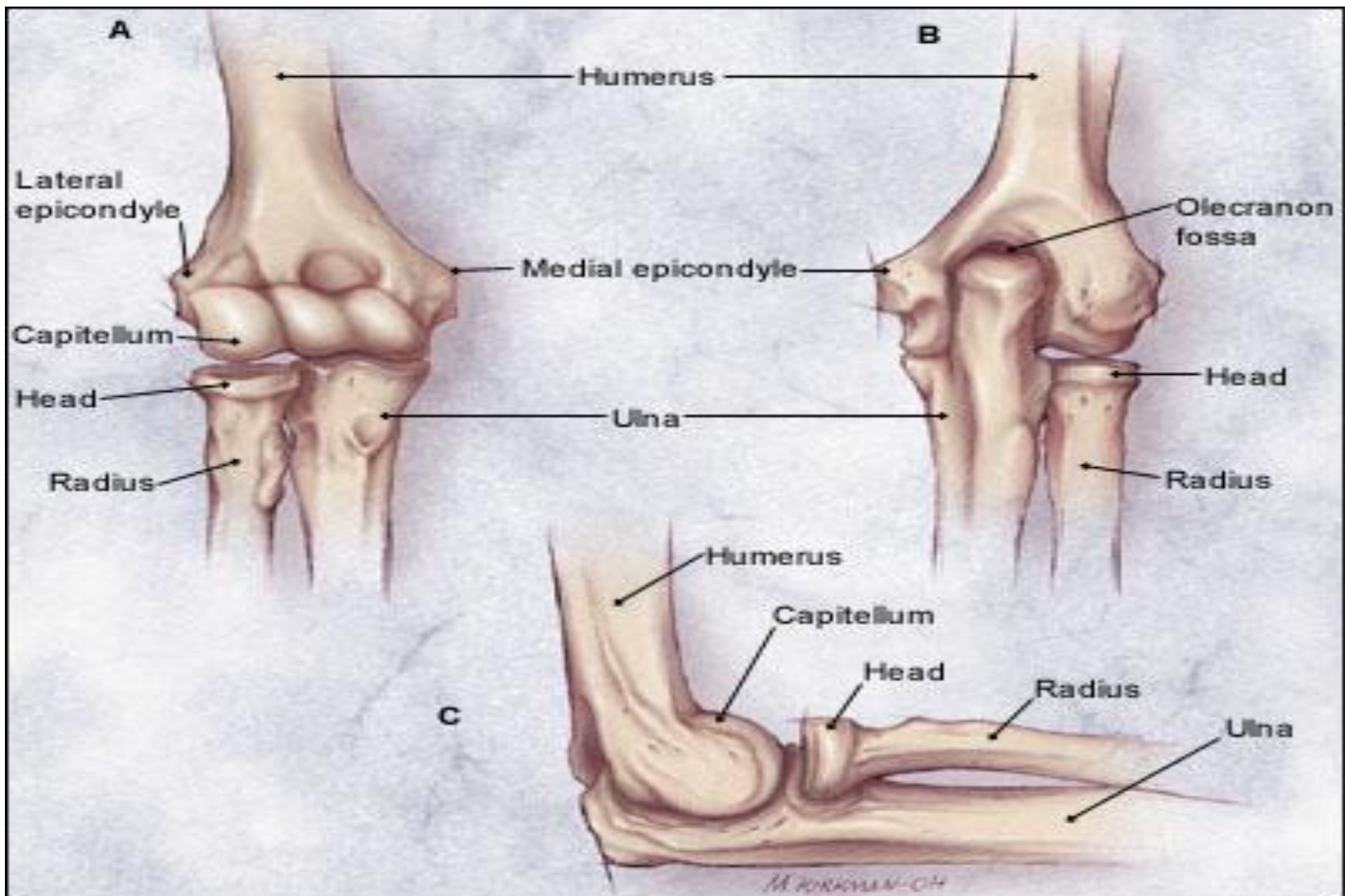


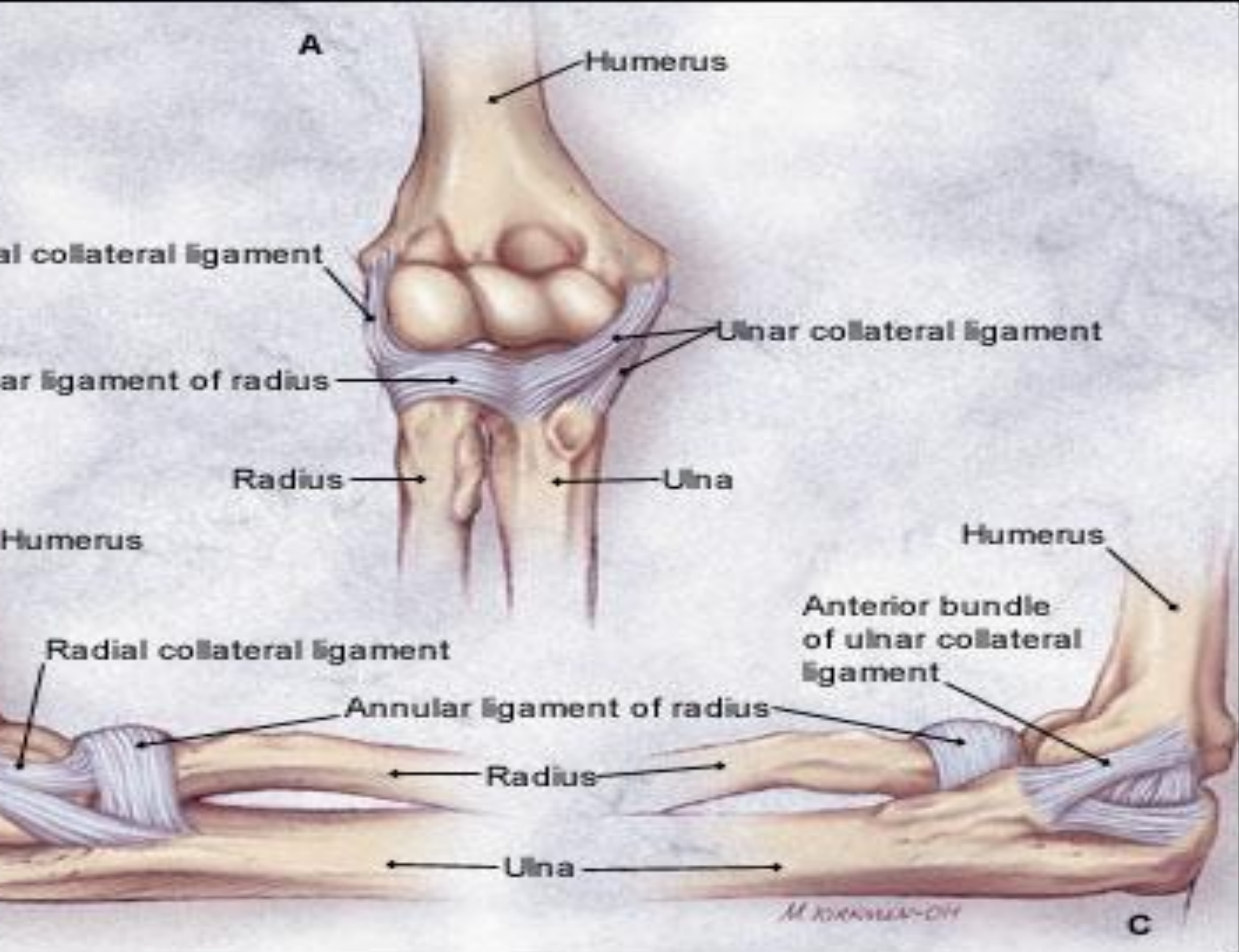


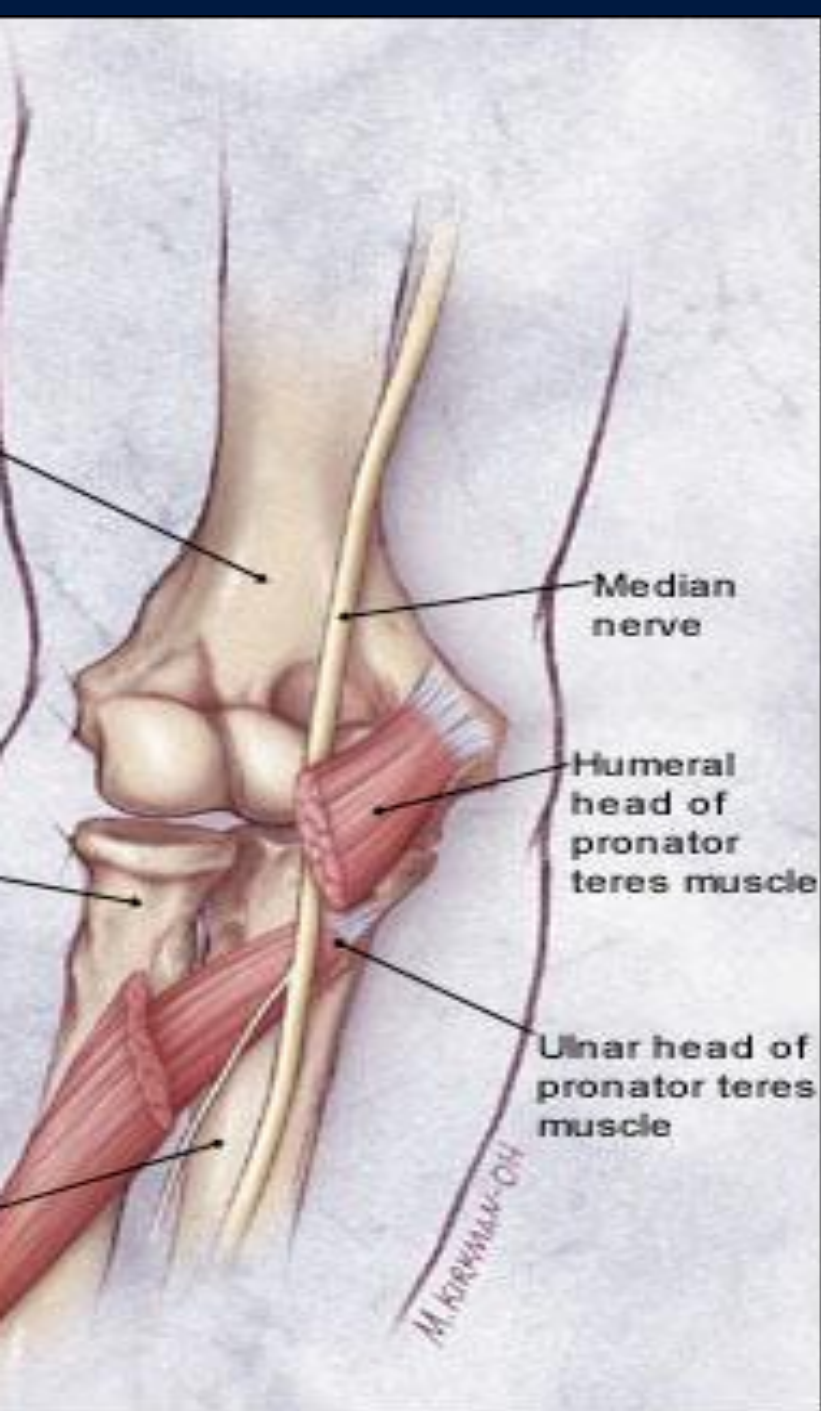




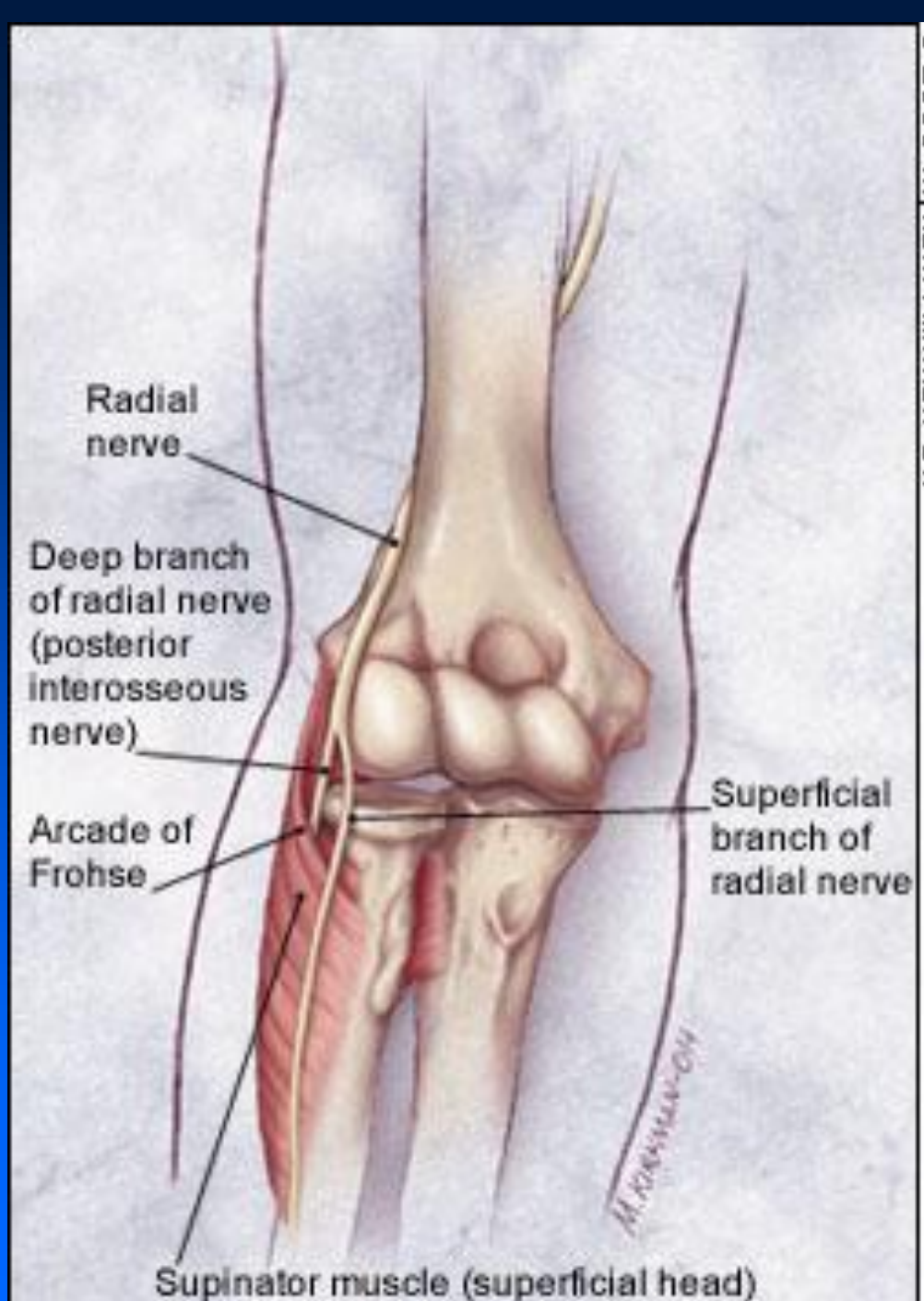
Thank You !!!







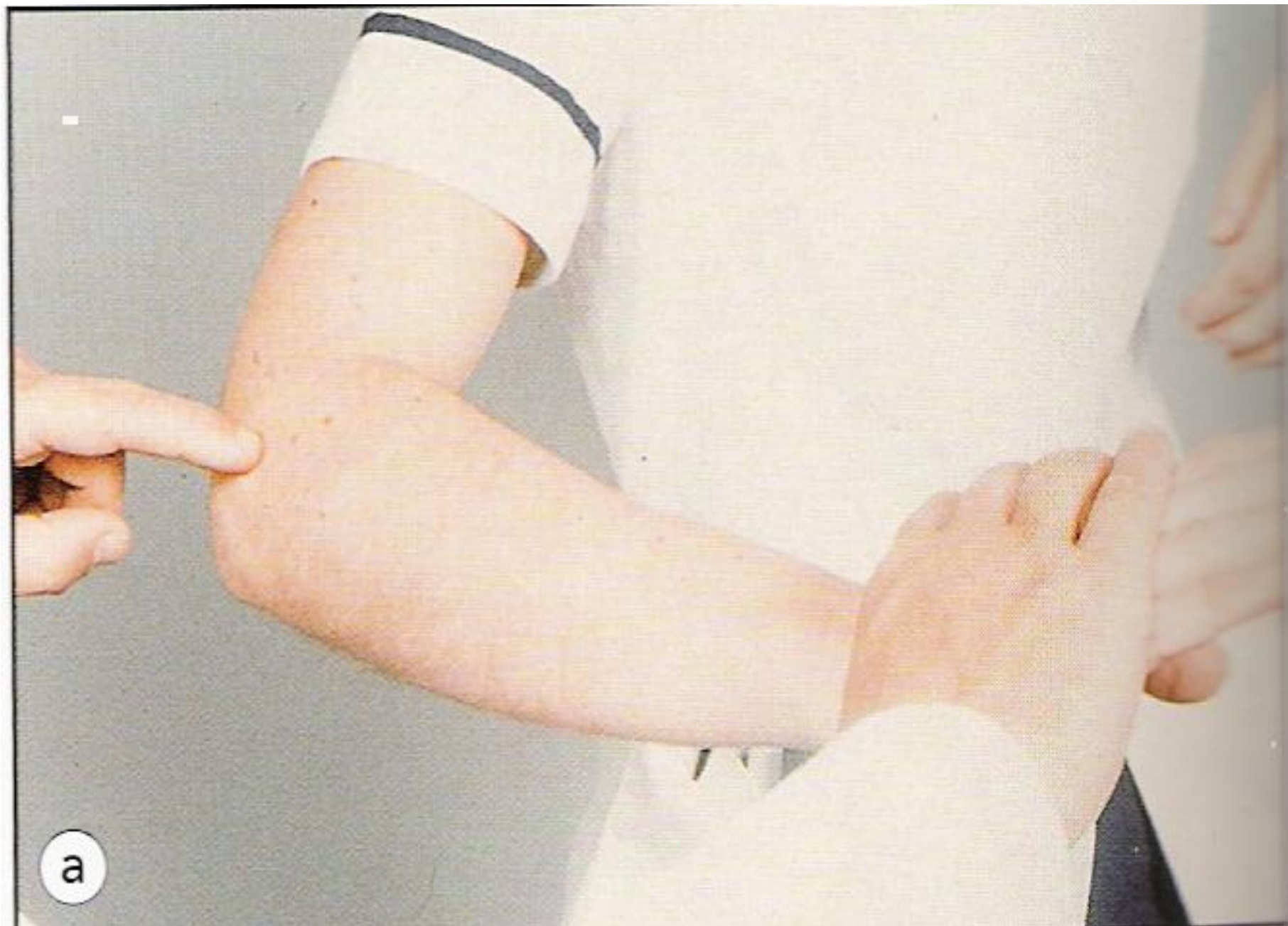
© 2000 Myriam Kirkman-Oh



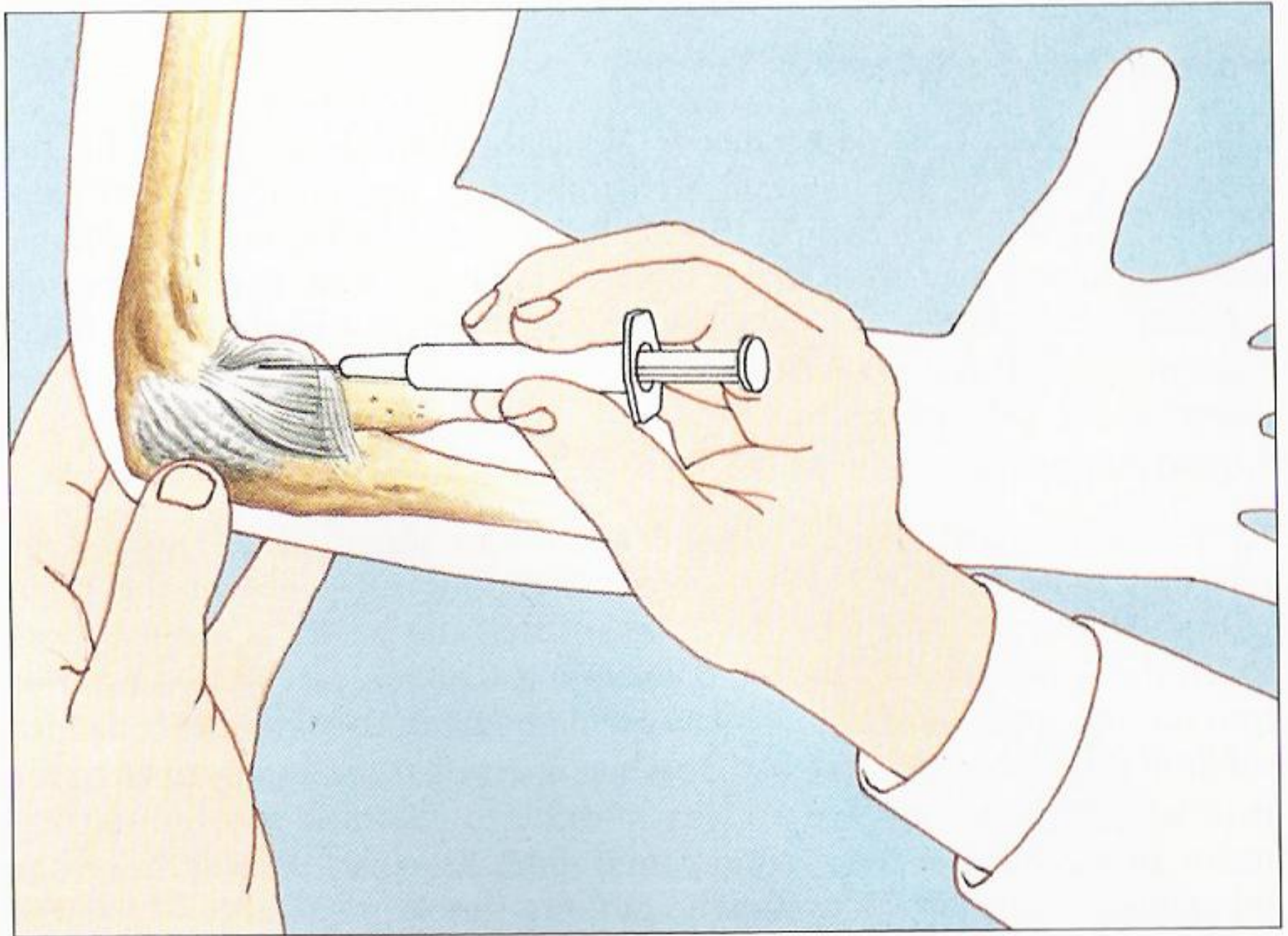
© 2000 Myriam Kirkman-Oh

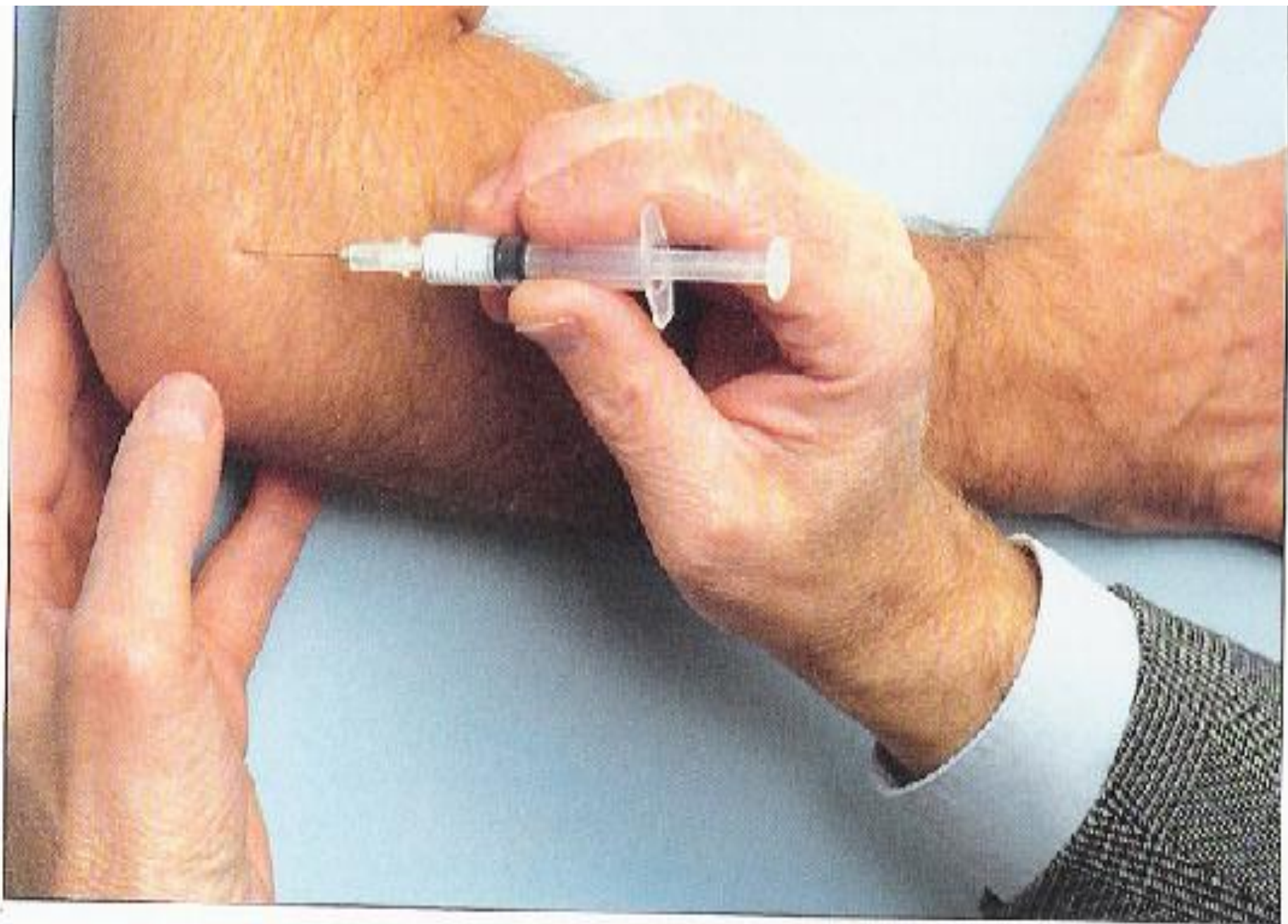


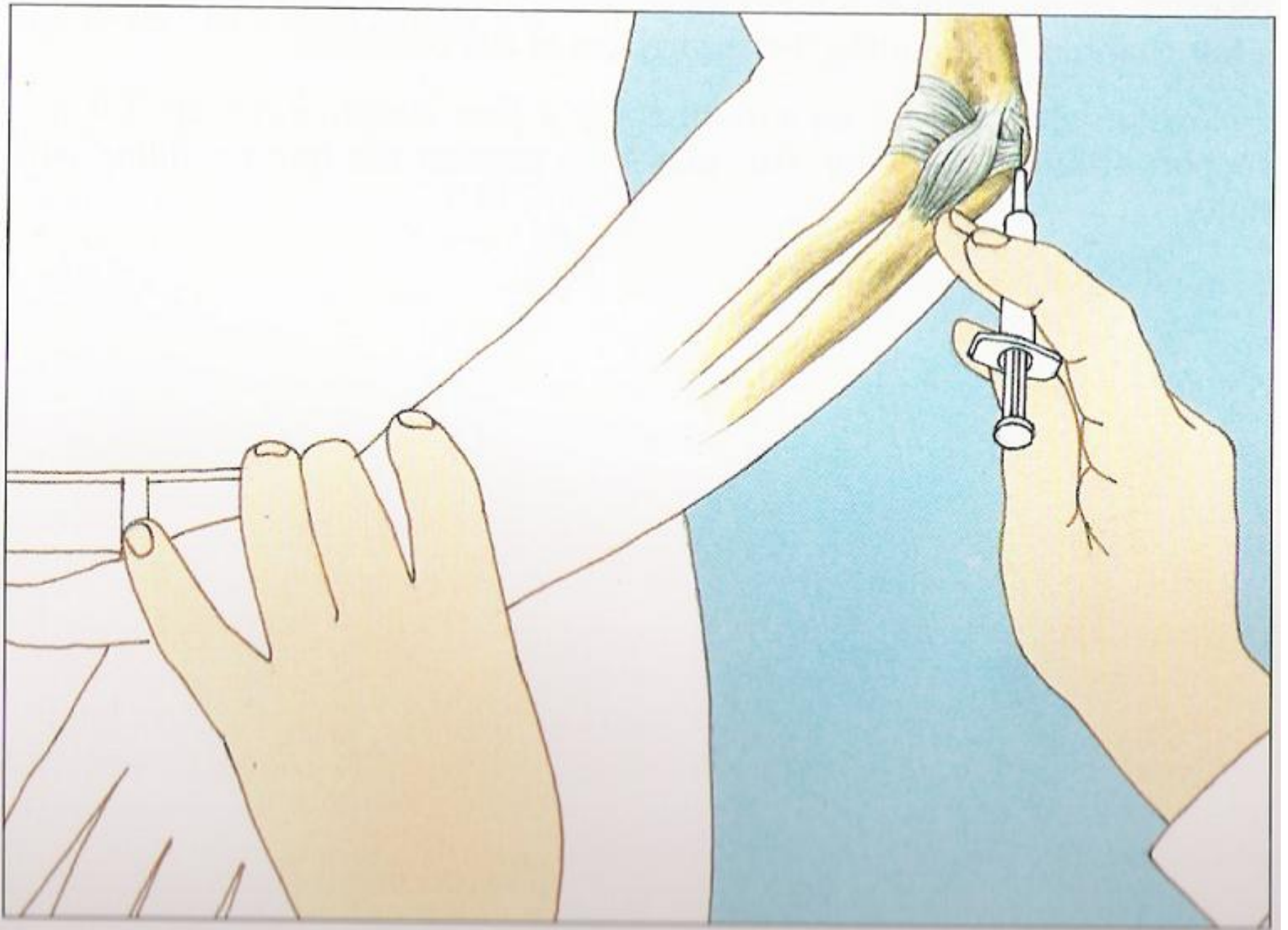


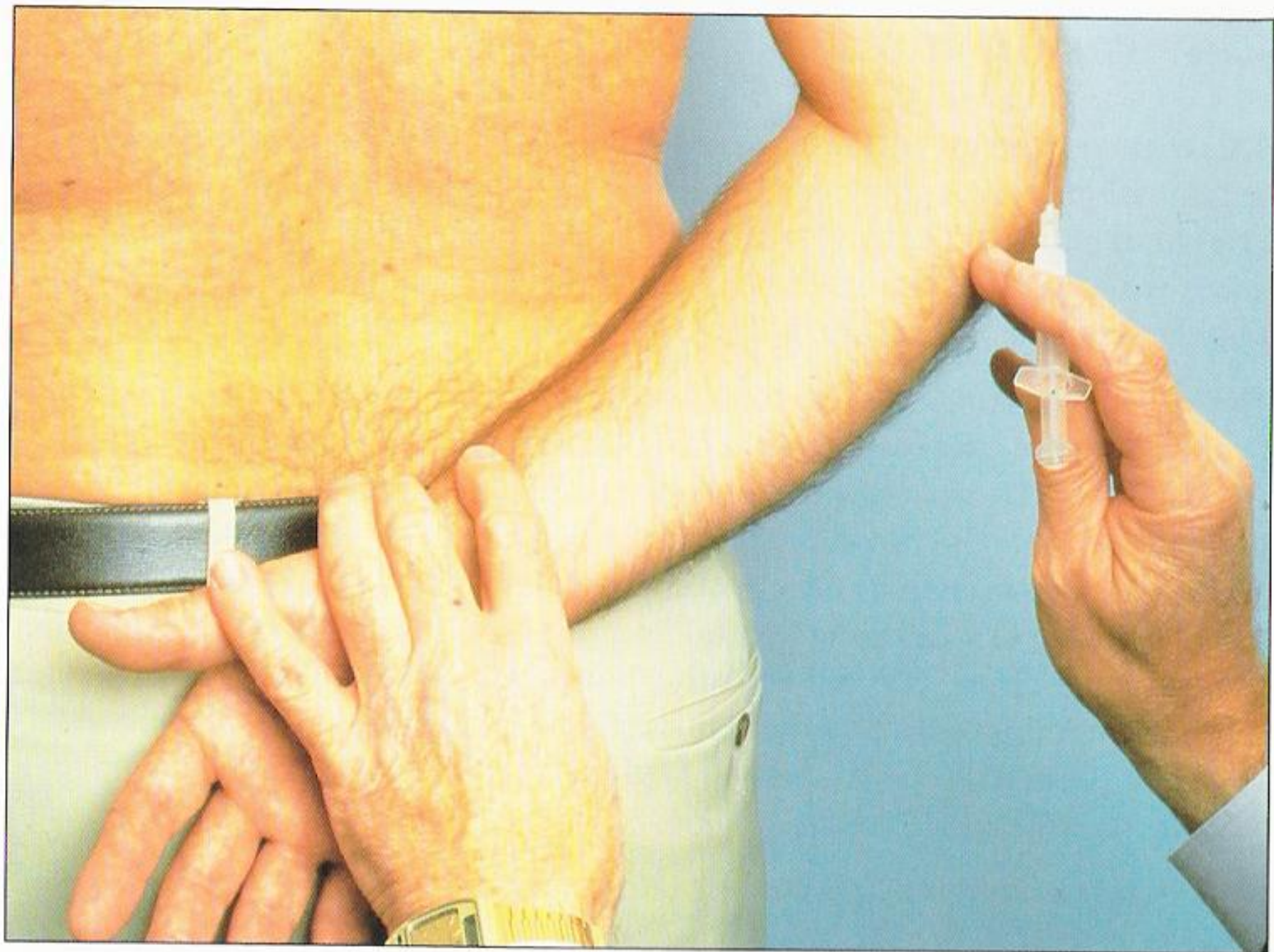






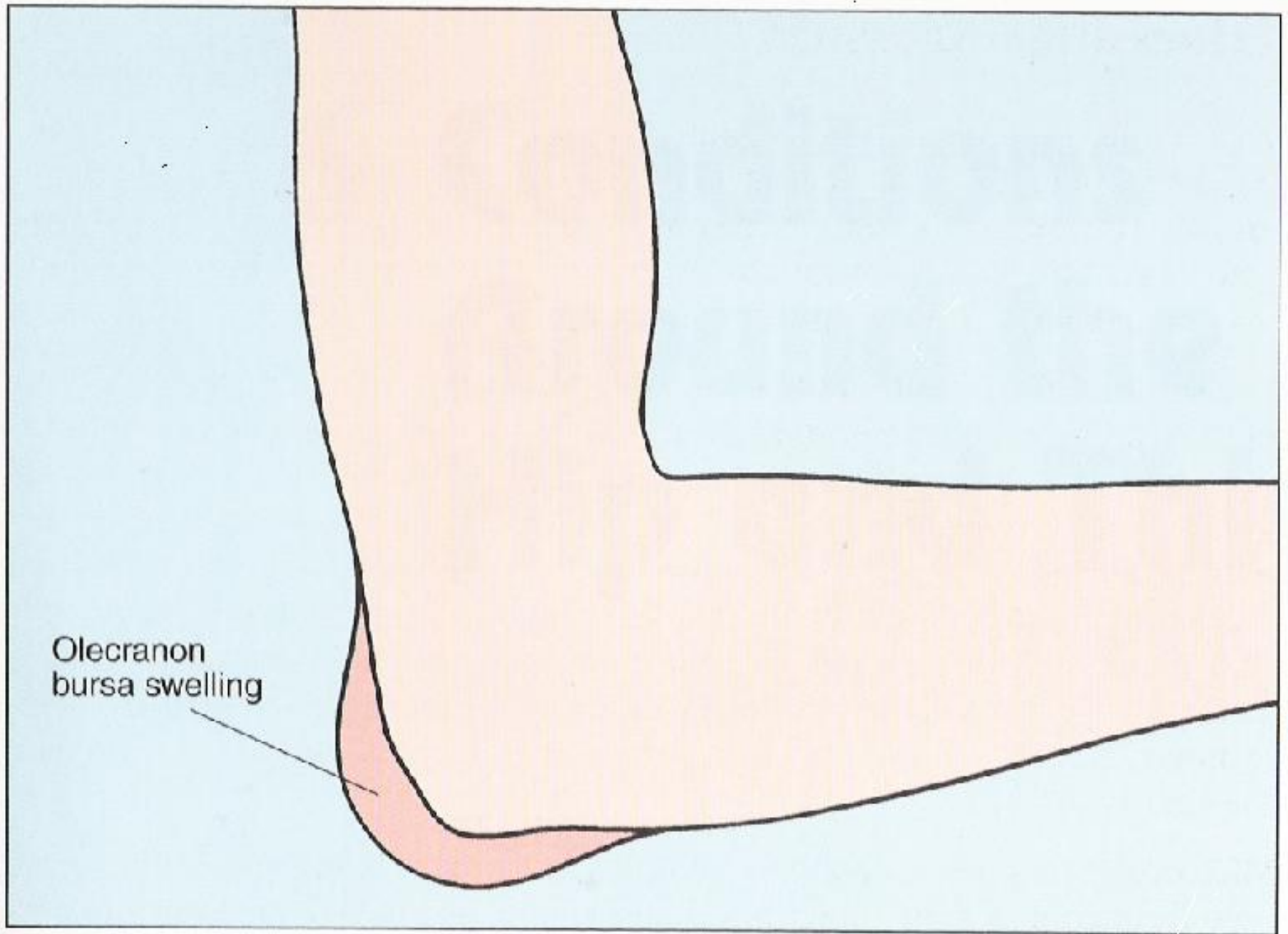






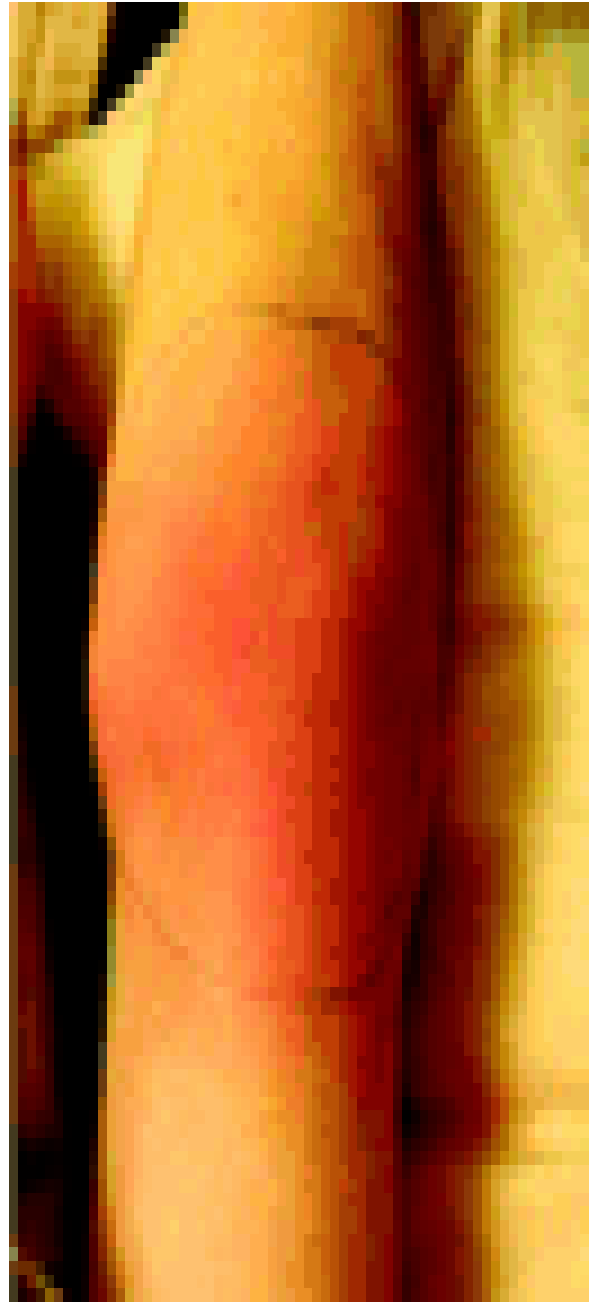


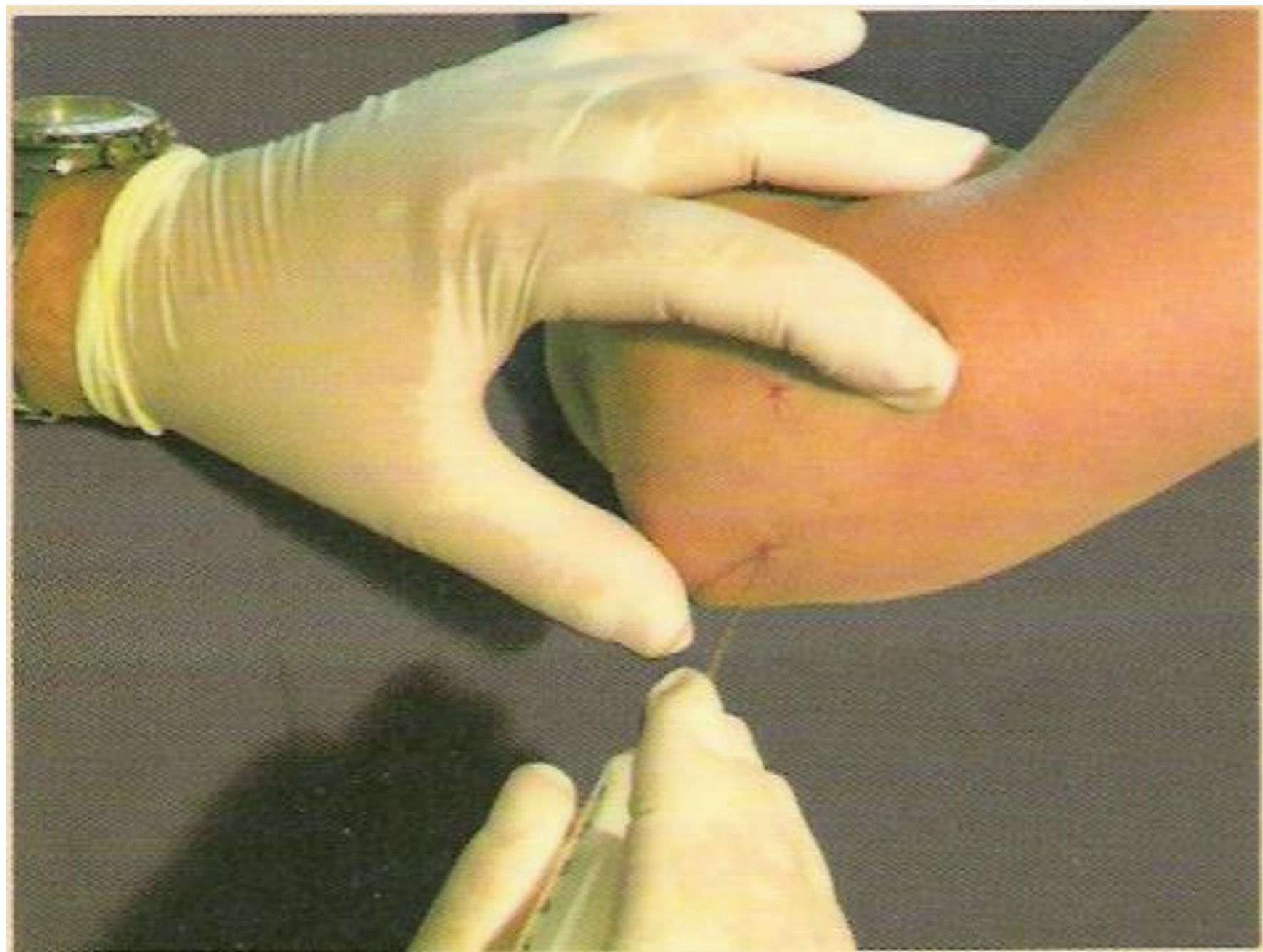




Olecranon
bursa swelling

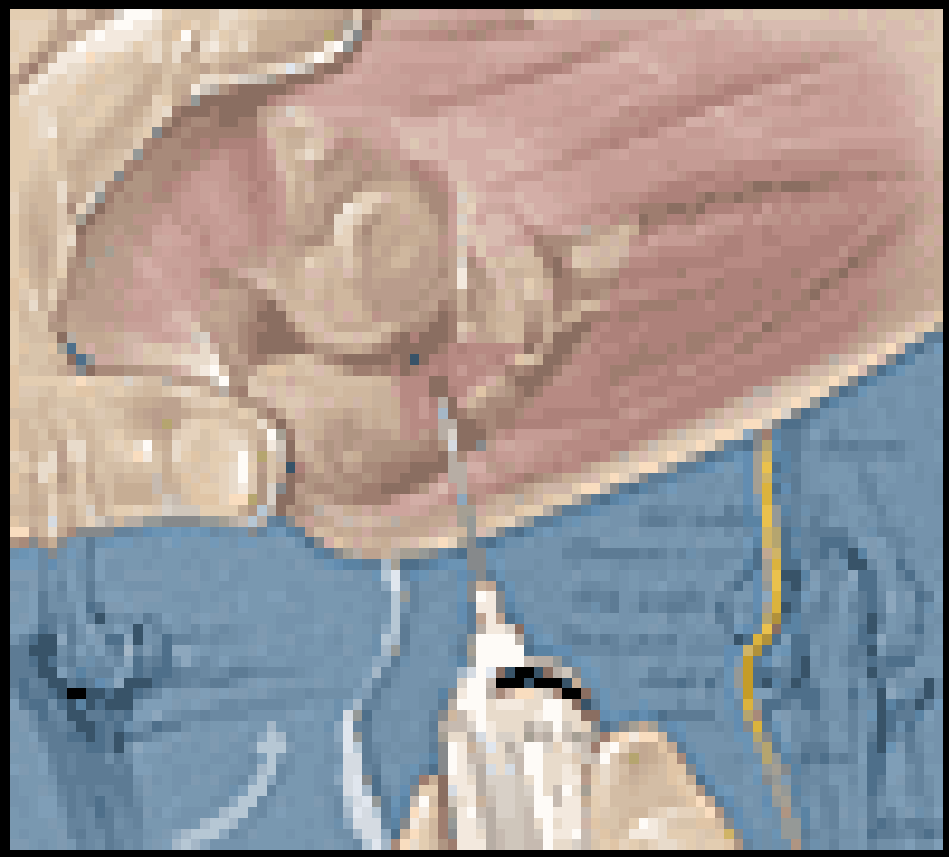


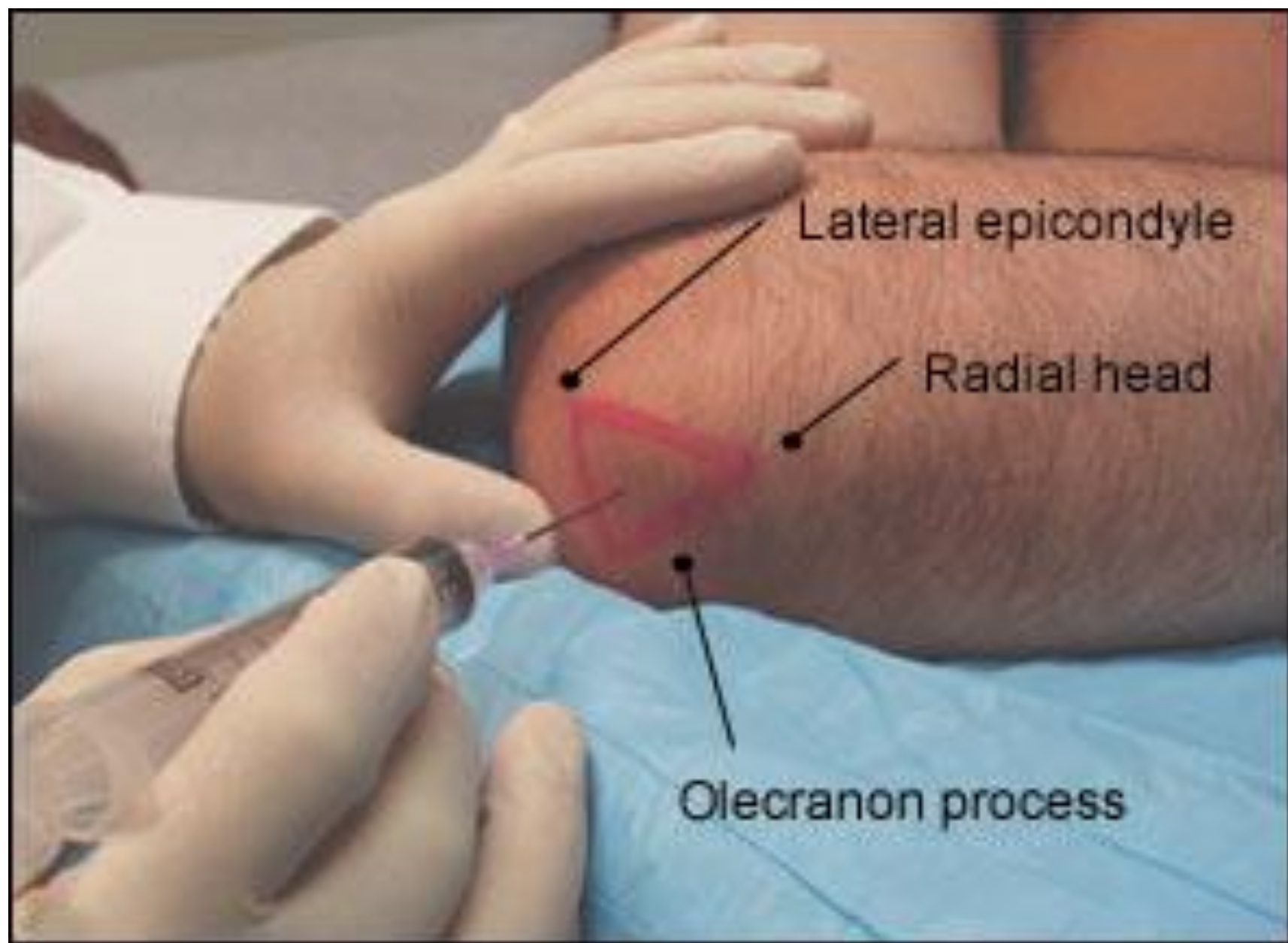






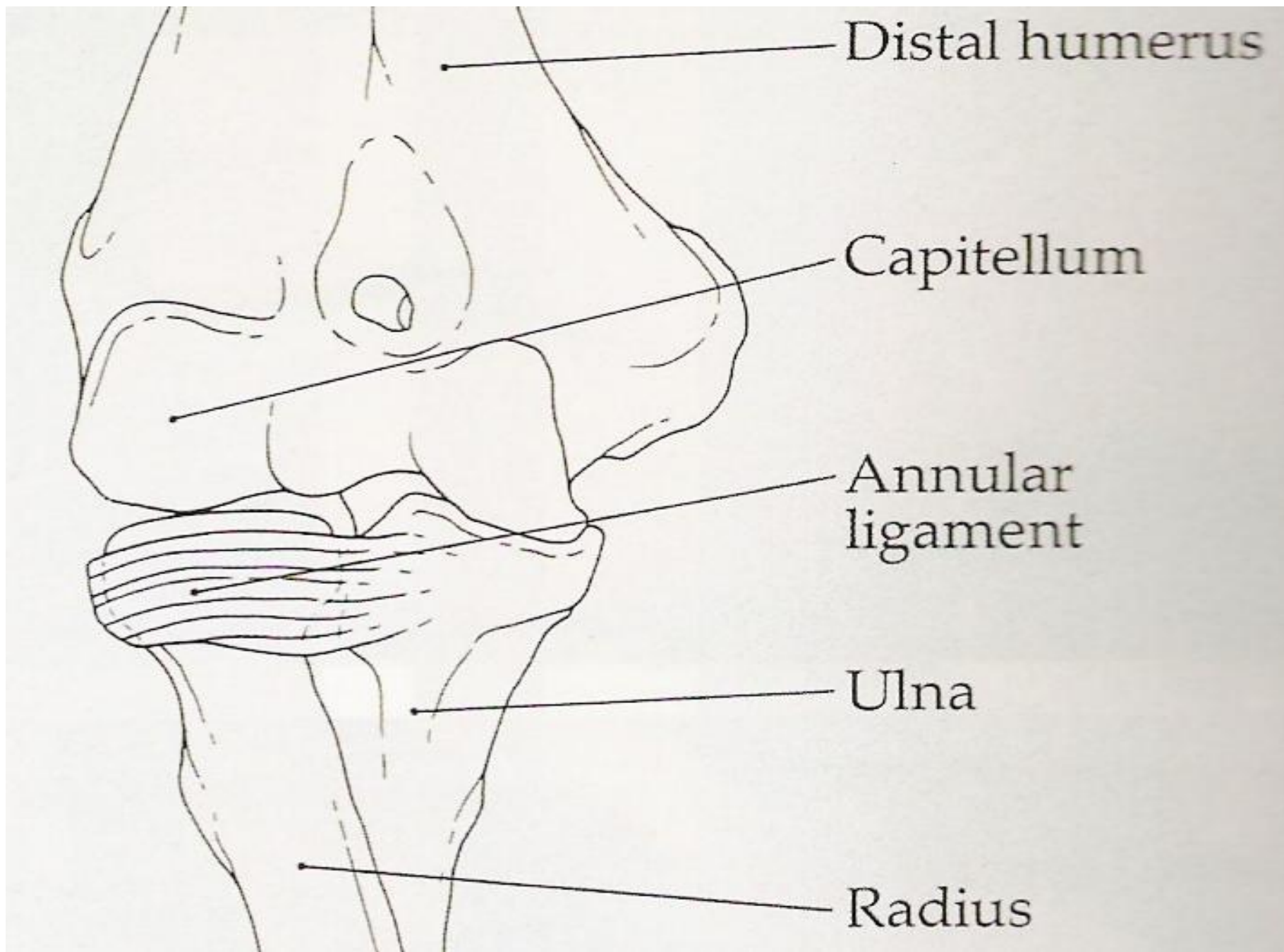


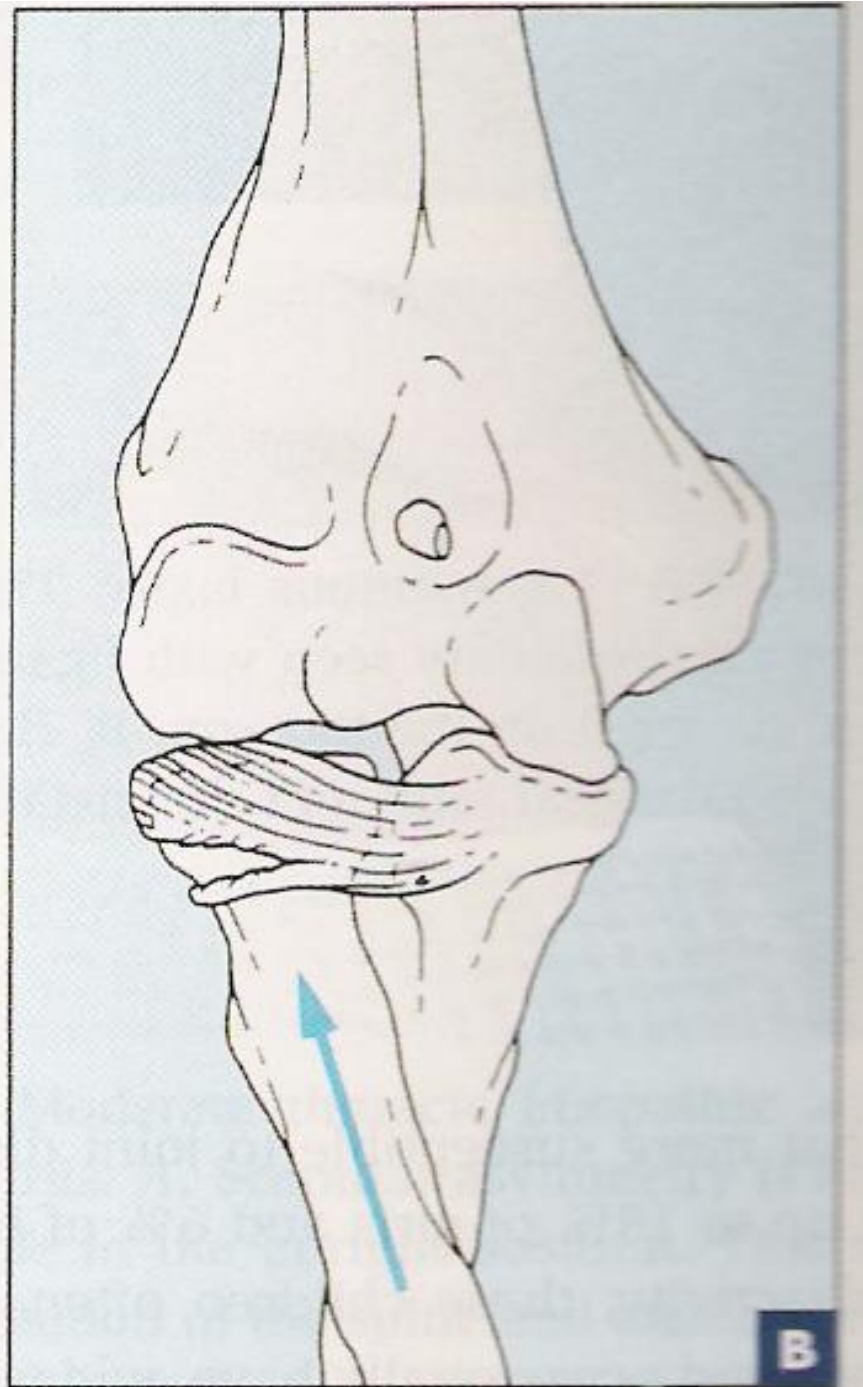
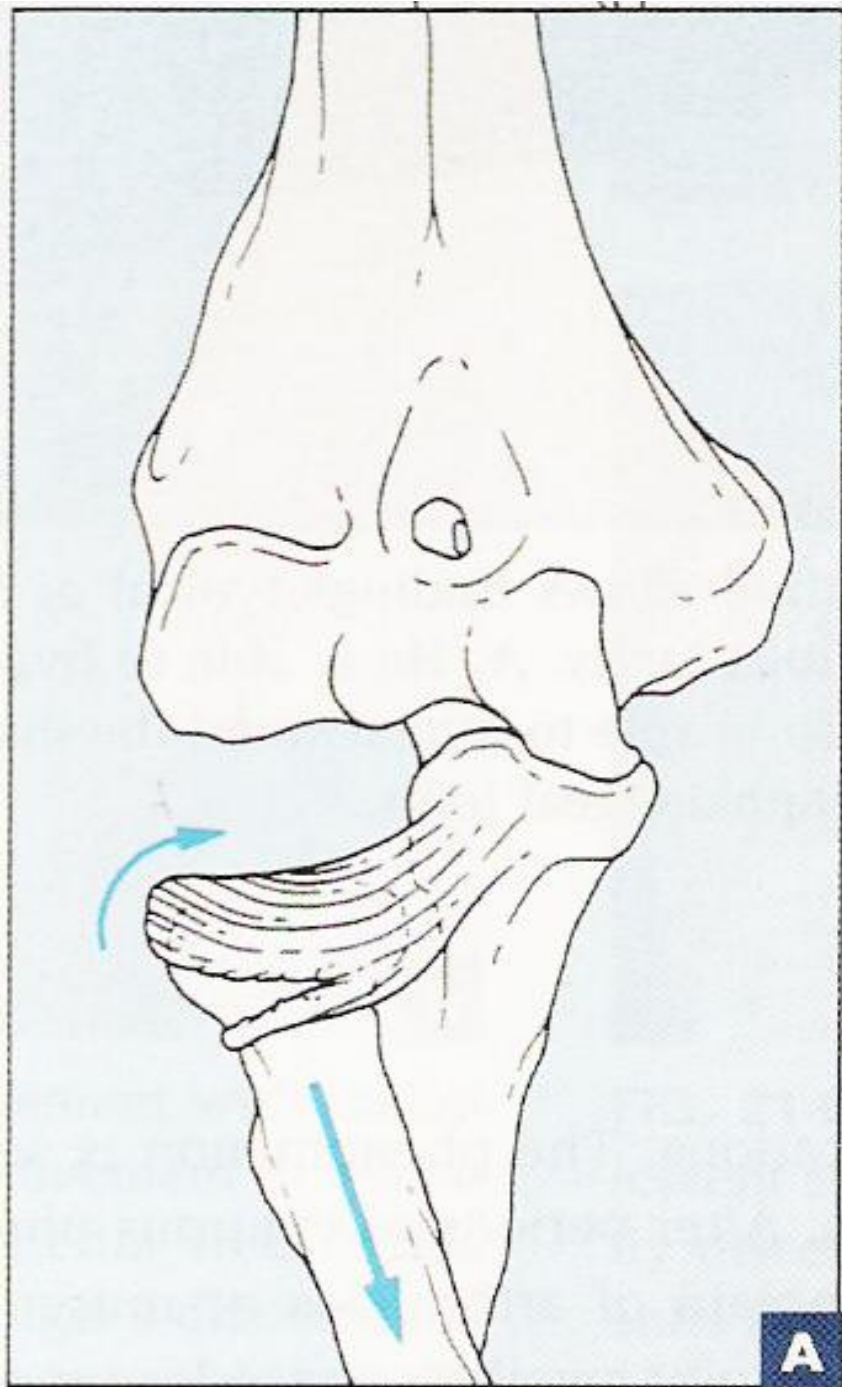








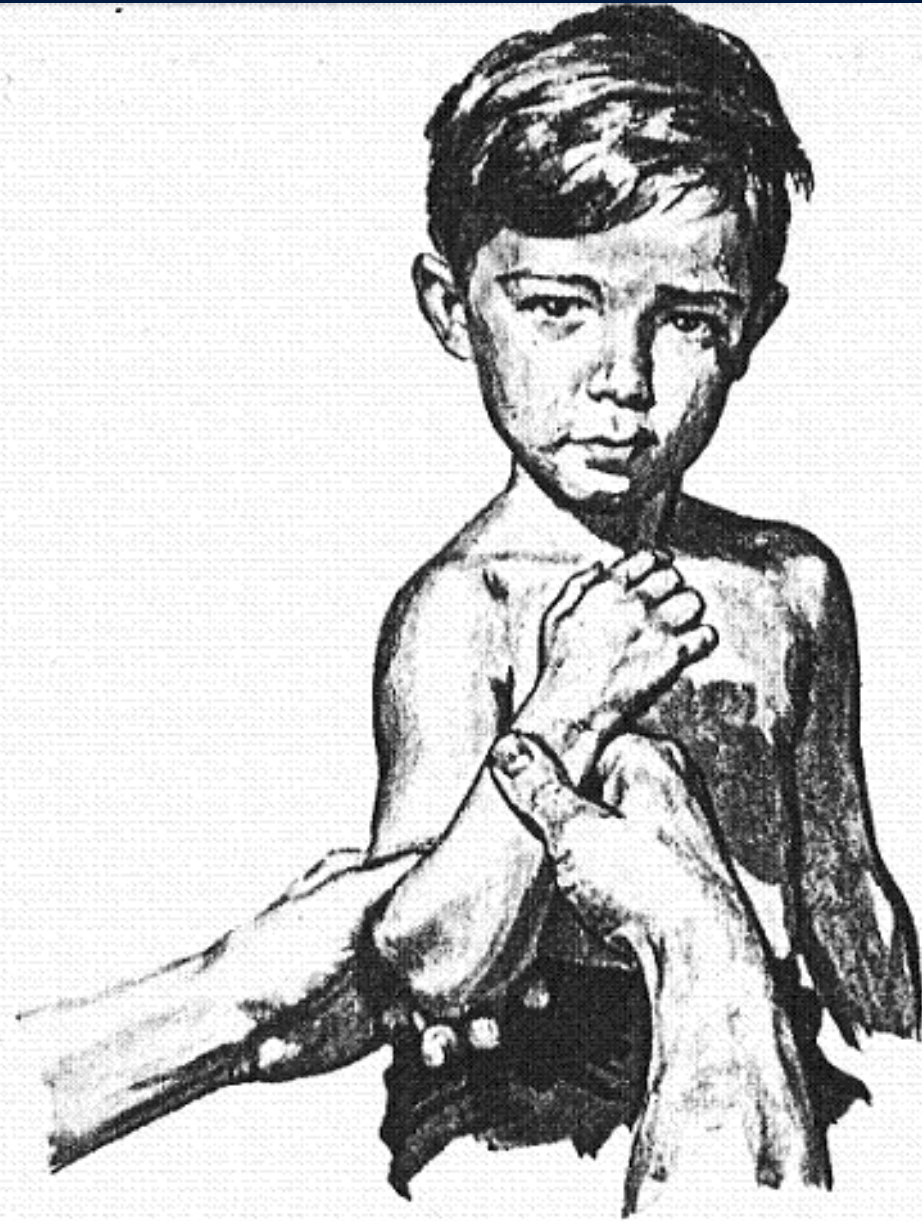






(SUBLUXATION OF
HEAD OF RADIUS
("PULLED-ELBOW"))

F. Netter
M.D.
©CIBA



REDUCTION:
1) WITH THUMB IN ANTECUBITAL SPACE
AS A FULCRUM, THE FOREARM IS ;
2) SUPINATED AND FLEXED

Thank You !!!