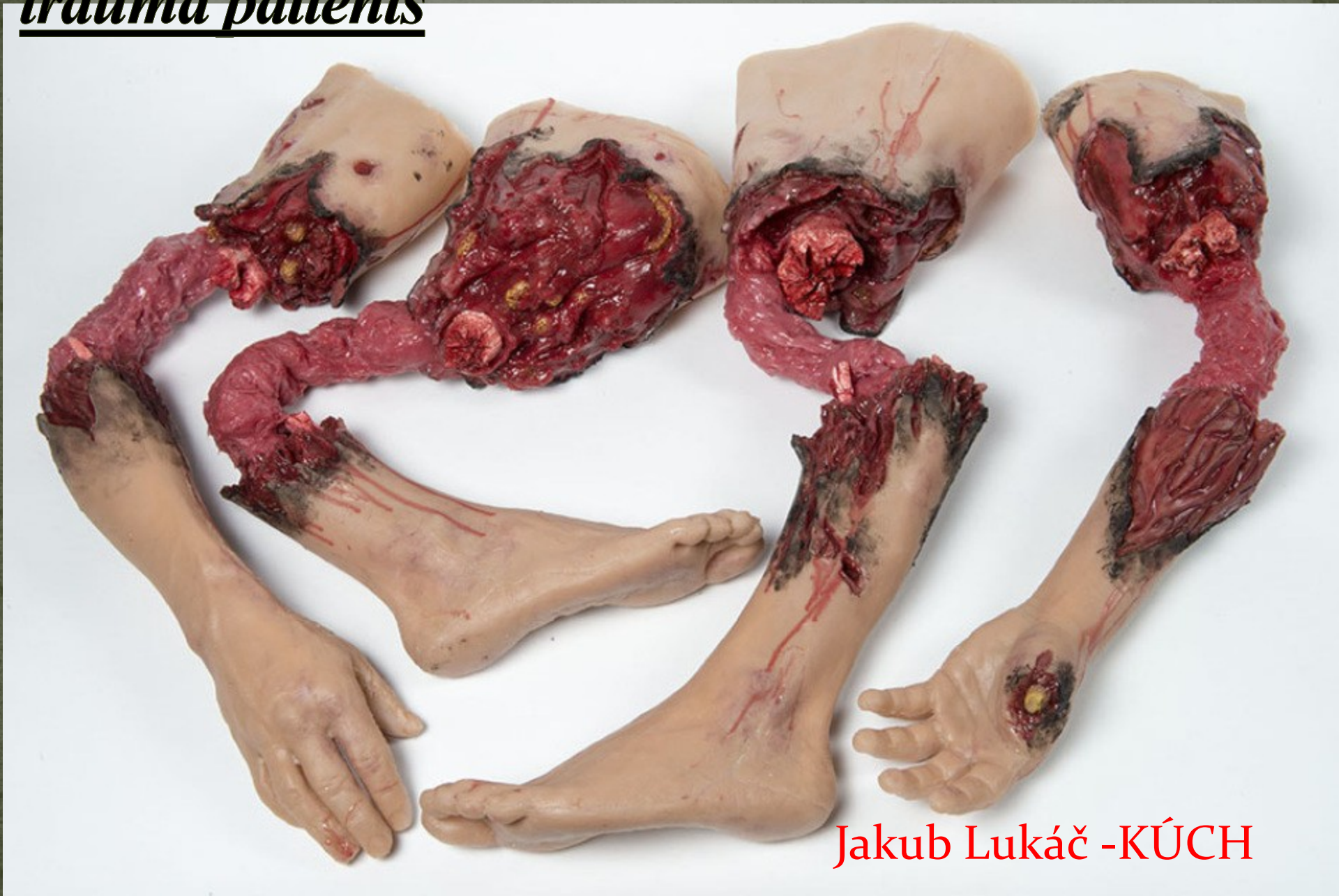
Personal, medical anamnesis and examination in trauma patients



Jakub Lukáč -KÚCH

Specifics of trauma patient examination

Specifics of patient´s anamnesis collection and examination in trauma patients are speed, briefness, thoroughness, decisiveness and ability of improvisation.

Differences are in examination of lightly injured, severely injured or in patient who is unconscious.

- Evaluation of patients state
- Exclusion or confirmation of life-endangering state
- Be vigilant
- Think about the worst case scenario

Anamnesis

What is anamnesis

from greek ἀνά, *aná*, "open", a μνήσις, *mnesis*, „memory“ –freely translated as **„recollection“**

Anamnesis is collection of several informations about patients health condition.

Division: direct /indirect

Structured anamnesis– your friend ☺

Structured anamnesis - decreases risk of forgetting important information considering your

Structured examination-friend also ☺

-same mechanism

****In general, the procedure of examination method remains the same, what changes are circumstances and form/extent- different approach is required in doctors office, different in ambulance, or in E.R.

Beginning of examination

- Starts with patients entrance in doctors office
- Opportunity of gaining patients trust
- Forget your previous patient
- Go through patients documentation
- Introduce yourself
- Give your patient enough space for self- explanation

Anamnesis:

General sequence:

1. Current illness
2. Personal anamnesis (operations, trauma)
3. Pharmaceutic anamnesis
4. Alergies
5. Vaccination
6. Abuses

Anamnesis:

Current illness:

What happened?

When?

Does he remember exactly what happened?Head trauma?

What are the dynamics of problem?

What was the mechanism of injury ?

What else bothers the patient?

Consumption of any substances such as drugs/alcohol?

Similar trauma in past?

.....

.....

Anamnéza:

Osobní anamnéza:

S čím se pacient léčí? Na co je sledován?

Trpí nějakým infekčním onemocněním?

Jaké úrazy prodělal v minulosti?

Zažil současné trauma již v minulosti?

Po čem má pacient (na břiše, končetinách, hlavě) jizvy?

Podrobil se pacient v minulosti operaci? Čeho?

Anamnesis:

Pharmaceutic anamnesis:

What does the patient take?Regular medication?

Dosage, grammage?

Anticoagulatory drugs?

Who else knows patients medication?

Does the patient have meds with him?Who can bring them?

Last documentation with current meds?

***Allergies*:**

What allergies does the patient have?

What reactions occur after he takes the medicine?

Any allergies to desinfectants, plasters, food?

Ask precisely in elderly!!!

Vaccination:

- apply Tetanic anatoxin in patients vaccinated more than 5 years ago –Tetavax (i.m.)
- if last vaccination happened more than 10 years ago – re-vaccinate with tetanic imunoglobulin (passive imunization – Tetabulin, Tega)(i.m.
- ask for specific reactions to vaccinations in the past
- ask for immunodeficient illness
- let patient stay in vicinity at least for 15-30 minutes
- send patient to his/her general practitioner

Vyšetření úrazového pacienta

Zásady fyzikálního vyšetření (vyšetření smysly):

Aspekce

Palpace

Perkuse

Auskultace

Per rectum

Olfakce

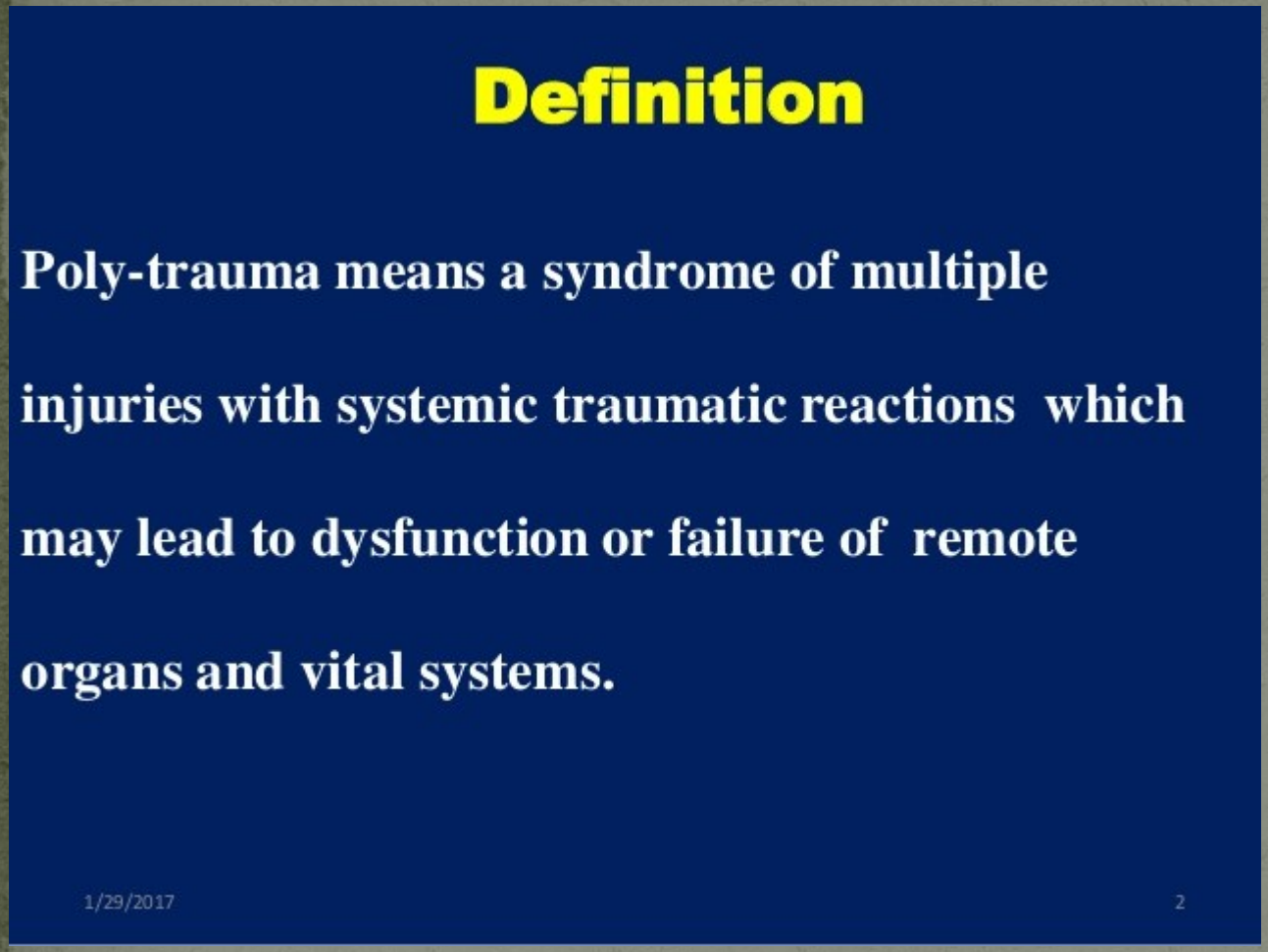
Examination after trauma

Characteristics of injuries change according to age, sex, season, etc...

Common injuries:

- cuts, bites, stab wounds
- fractures
- dislocations
- distorsions, distensions, ruptures
- POLYTRAUMA
- ....
- .....

POLYTRAUMA:



at least one organ system injury endangers patients life

Triage positivity – indication for transport to special facility –Trauma Centre

Triage positivity:

Pozitivita: stačí pozitivní 1 položka v alespoň 1 skupině „F“ nebo „A“ nebo „M“, skupina „P“ obsahuje pomocné faktory.

F. Fyziologické ukazatele: 1. GCS < 13 2. TK syst < 90 mmHg 3. DF < 10 nebo > 29/´

A. Anatomická poranění: 1. Pronikající kraniocerebrální 2. Nestabilní hrudní stěna 3. Pronikající hrudní poranění 4. Pronikající břišní poranění 5. Nestabilní pánevní kruh 6. Zlomeniny ^{3} 2 dlouhých kostí (humerus, femur, tibie)

M. Mechanizmus poranění: 1. Pád z výše > 6 m 2. Přejetí vozidlem 3. Sražení vozidlem rychlostí > 35 km/h 4. Katapultáž z vozidla 5. Zaklínění ve vozidle 6. Smrt spolujezdce

P. Pomocná kritéria: 1. Věk < 6 let 2. Věk > 60 let 3. Komorbidita kardiopulmonální

ISS – injury severity score

- scoring system – correlation with mortality and morbidity

Injury Severity Score; ISS

Region	Injury Description	AIS	Square Top Three
Head & Neck	Cerebral Contusion	3	9
Face	No Injury	0	
Chest	Flail Chest	4	16
Abdomen	Minor Contusion of Liver Complex Rupture Spleen	2 5	25
Extremity	Fractured femur	3	
External	No Injury	0	
		Injury Severity Score:	50

AIS Score	Injury
1	Minor
2	Moderate
3	Serious
4	Severe
5	Critical
6	Survivable

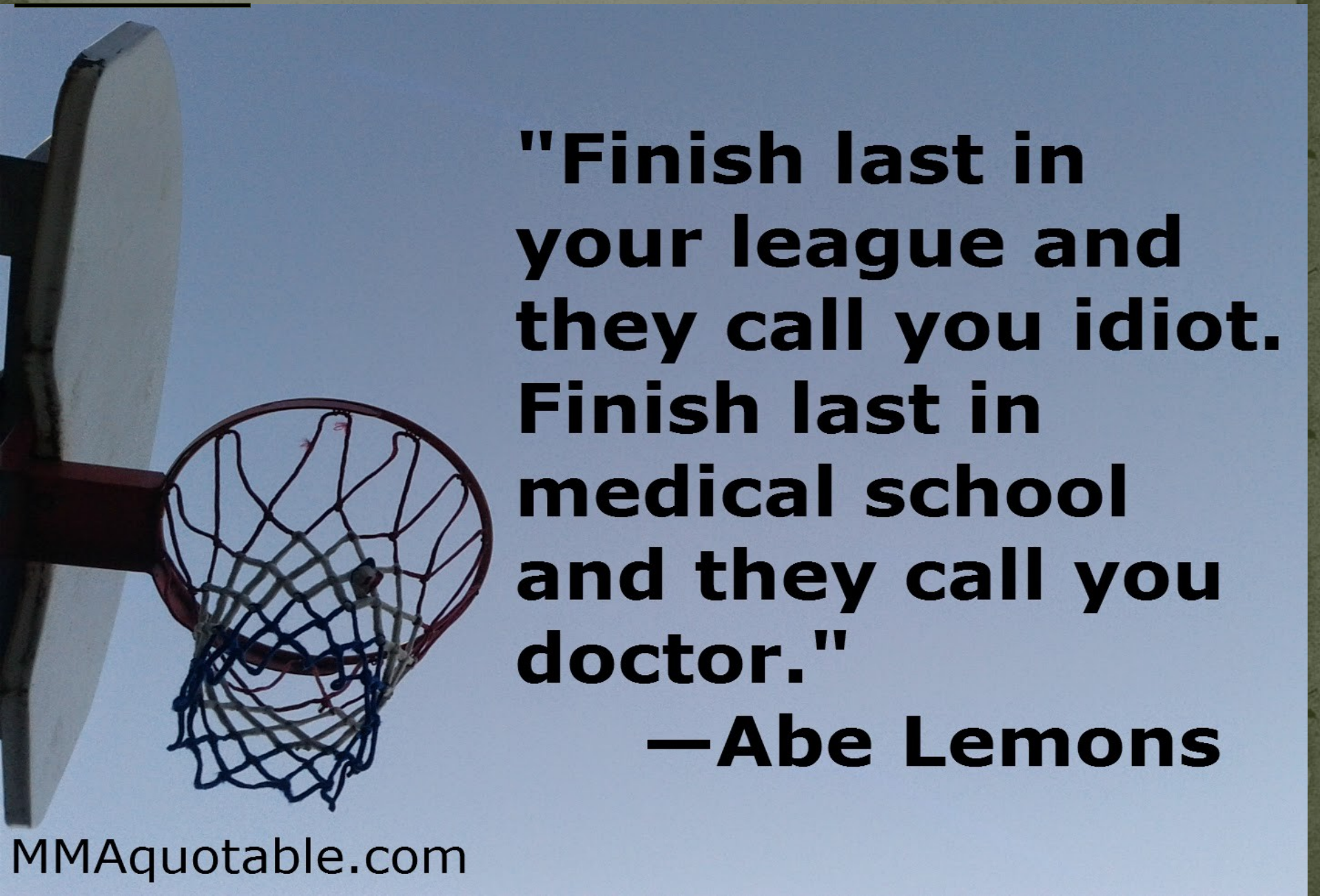
ISS	
1-8	Minor
9-15	Moderate
16-24	Serious
25-49	Severe
50-74	Critical
75	Maximum

ATLS-advanced trauma life-support

Primary survey- A,B,C,D,E principle

Secondary survey – head to toe examination

Tertiary survery- definitive examination after patients stabilisation


"Finish last in your league and they call you idiot. Finish last in medical school and they call you doctor."
—Abe Lemons
MMAquotable.com

KNEE

Knee examination: position, palpation, range of motion, inspection, manipulation, aspiration

We ask for: time and mechanism, feeling of click, patin, dislocation, sound phenomenon, previous knee injury of same or opposite side, operations, and many more...

We evaluate patients : age, body weight, activity, hobbies...

Mechanism of injury

Meniscus injury: horizontal rotation with vertical load, partially flexed knee

Injury to collateral ligaments: force from side

Injury to cruciate ligaments:

LCA – in weight-loaded knee, rotation of femur in opposite way to tibia (deceleration with change in way)

LCP – fall on flexed knee, hyper-rotation of knee joint

Examination

At least briefly examine opposite (healthy) knee

Aspection: defiguration, antalgic position, colour, hematoma, volume,axial/non-axial position, position of patella (dislocation?) walk, range of motion

Palpation: palpation of pain, temperature, scrooping, „click-phenomenon, movement, effusion

Manipulation: functional tests of knee joint

Aspiration: in joint effusion, diagnostic/therapeutic aspiration

Patella

Palpation- palpable defect, drásoty, scrooping–jack- plane sign,ballotement of patella, milking

In case of patellar fracture suspicion– do not flex the knee !!!

Aspection– we watch patellar position in knee joint

Patellar fracture

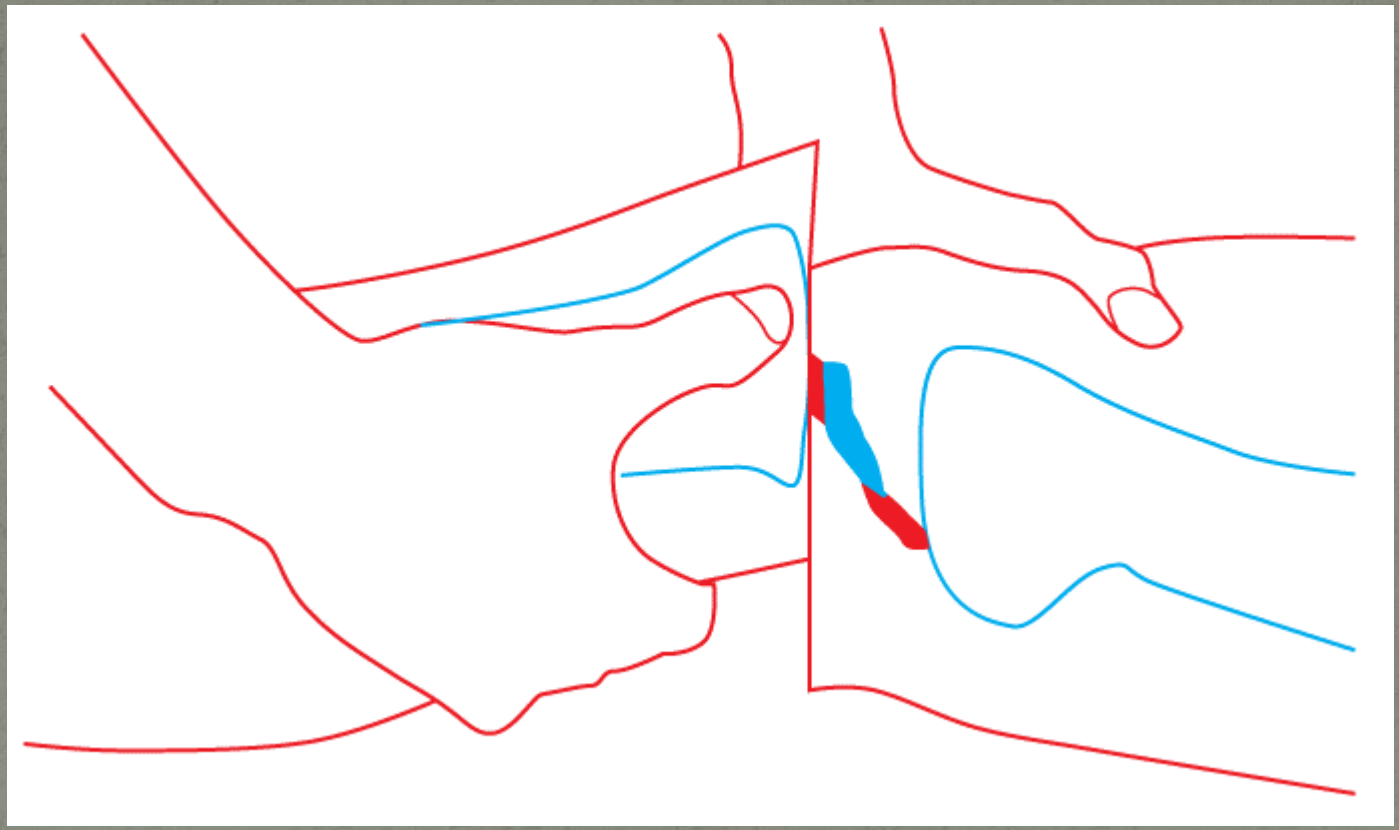
Patellar dislocation

LCA-ligamentum collaterale anterior

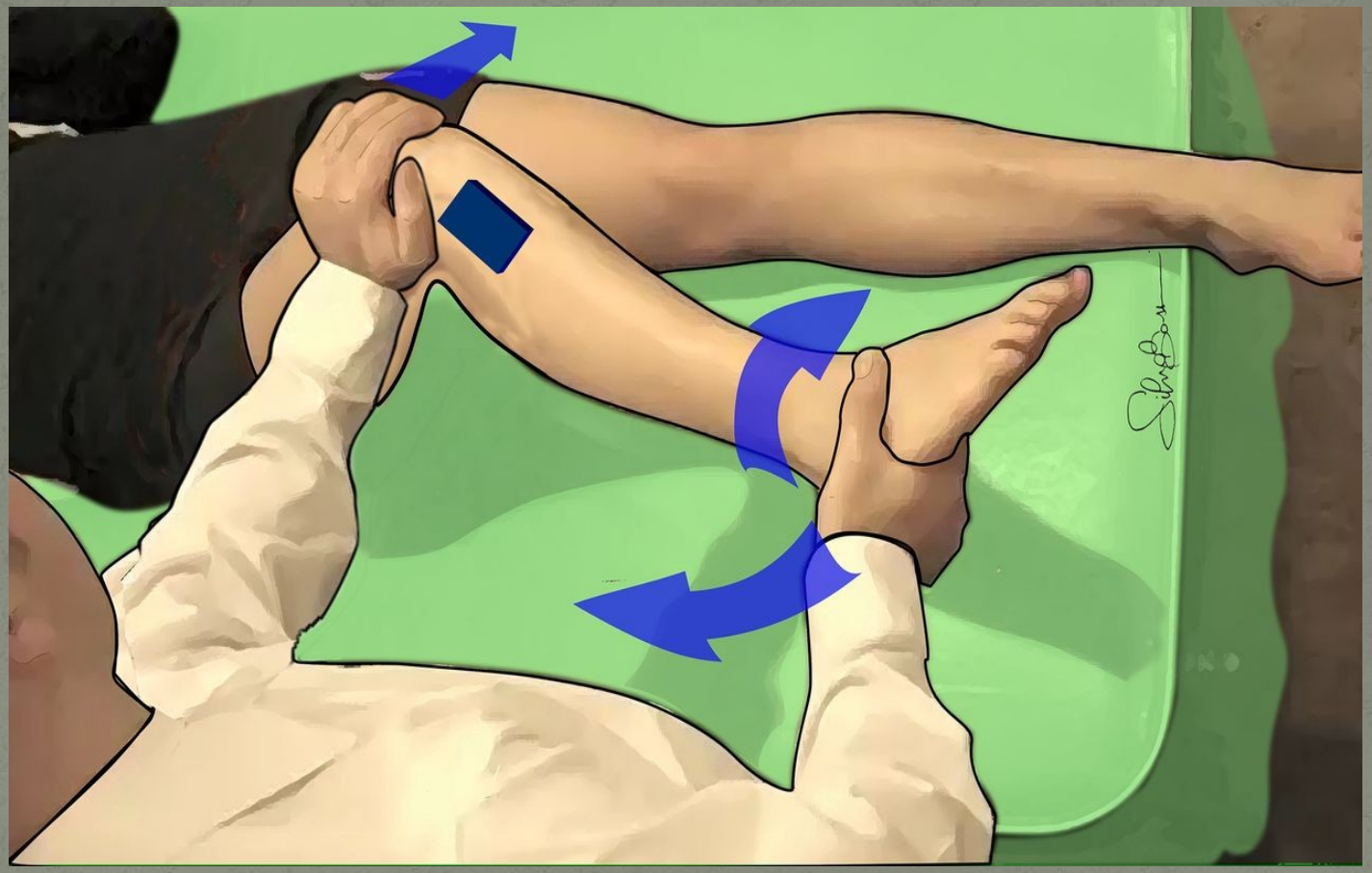
Lachmann-most realiable test – knee flex in 20-30° - (opened knee joint), we manually elicit laxity in femur to tibia movement

Pivo-shift test- knee in extension, press against the heel, internal tibial rotation, valgus pressure on knee joint– subluxation of tibia

Anterior drawer test- knee flexed in 90°,doctor sits on patients leg, finger on hamstrings, thumbs around lig. patellae, pull towards yourself - laxity




90°



Aspiration:

Diagnostic/therapeutic method– we check for colour, amount, presence of fat drops, taste… ☺

LCP – ligamentum collaterale posterior

Posterior drawer test –

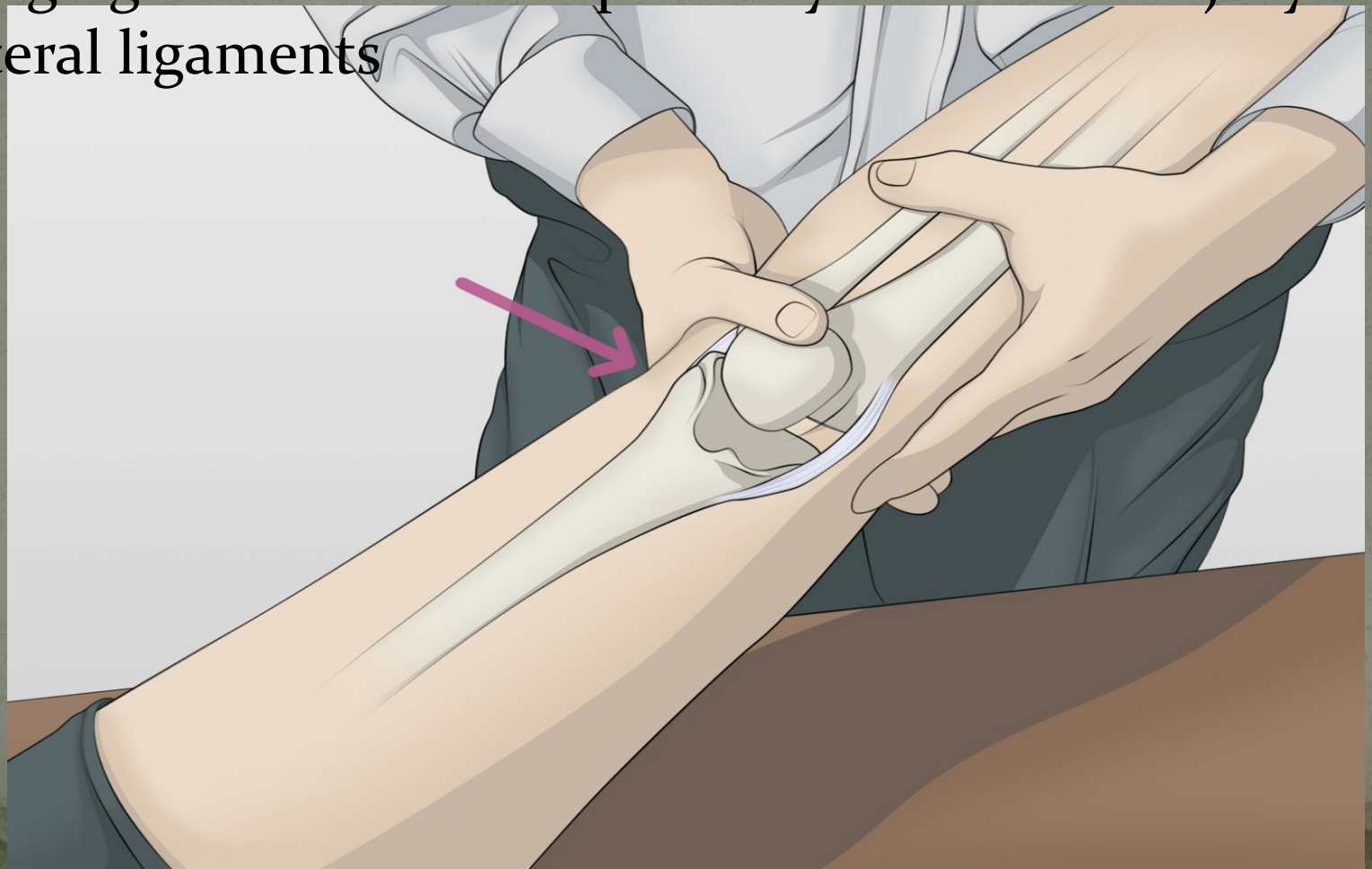
- quite rare

Sac test

Ligg. collateralia

Varus – valgus test – knee in full extension + force from the side – if laxity is present, there might be injury to both collateral and cruciated ligaments

-during light-semiflexion – probably an isolated injury to collateral ligaments



Meniscus medialis et lateralis

Purpose of these test is to trap both menisci in between the femur and tibia

McMurray test – fingers on knee fissure,knee in hyperflexion, we add intra/extra- rotation, while slowly extending the knee – we watch for pain, „click“ in knee

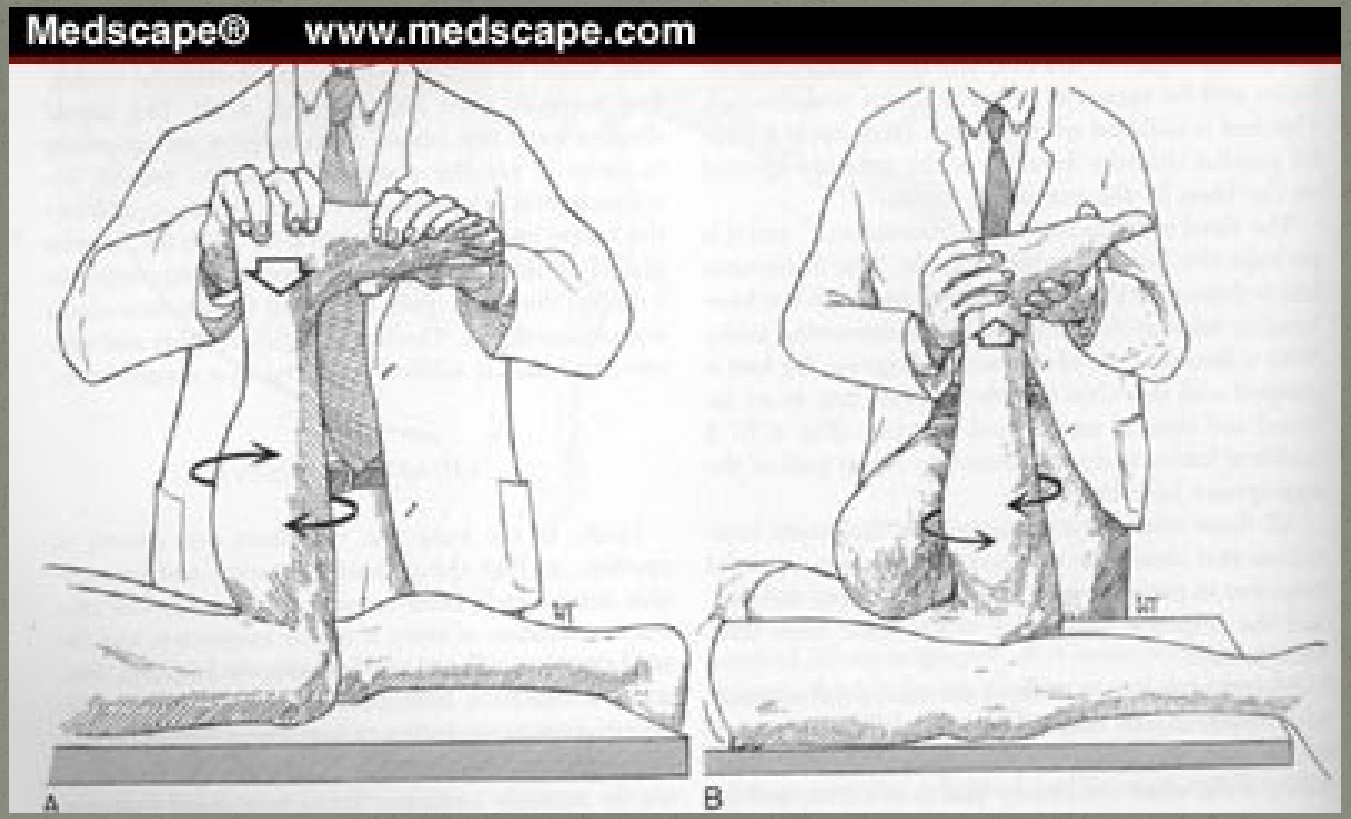
Steinmann I – knee flexion + intra/extra-rotation

Steinmann II – with increasing flection, pain moves to back

Extension test (sign)- we palpate front part of joint fissure on knee joint, then extend the knee – if pain occurs, the test ist positive

Childress test – tenderness of joint fissure when kneeling

Appley test – patient in prone position – we apply vertical force on foot, and rotate- positivity in case of pain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A
B

Conclusion–tips and tricks

Increase in volume in matter of hours/days-sign of synovial effusion or blood collection (hemarthros)

- if more than one day (probably synovial effusion)

Hemarthros is an indication for acute ASC!!!

If patient is extremelly painful, and there is no blood in the knee, or mechanical block – examination in second session

X ray of both knee joint – for the sake of comparism

CT of the knee joint – in unclear finding or in suspicion for intraarticular fracture

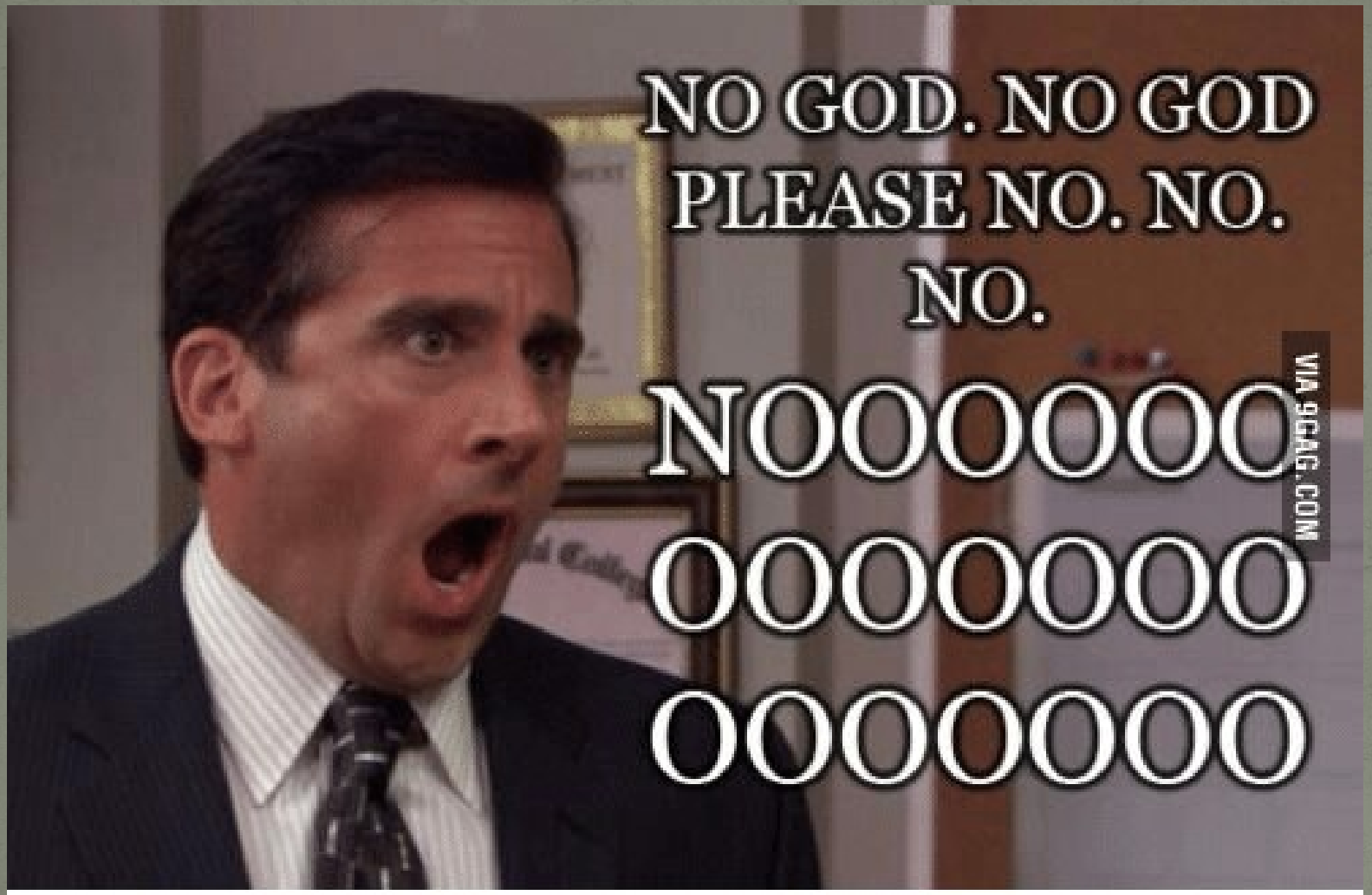
MRI – in case of unclear finding

Always examine the popliteal fossa – aneurysm, ganglions, Baker´s cyst

Last but not least….

ULTRASOUND OF THE KNEE JOINT? YES OR NO?

……answer?


NO GOD. NO GOD
PLEASE NO. NO.
NO.
NOOOOOO
OOOOOOO
OOOOOOO
VIA 9GAG.COM

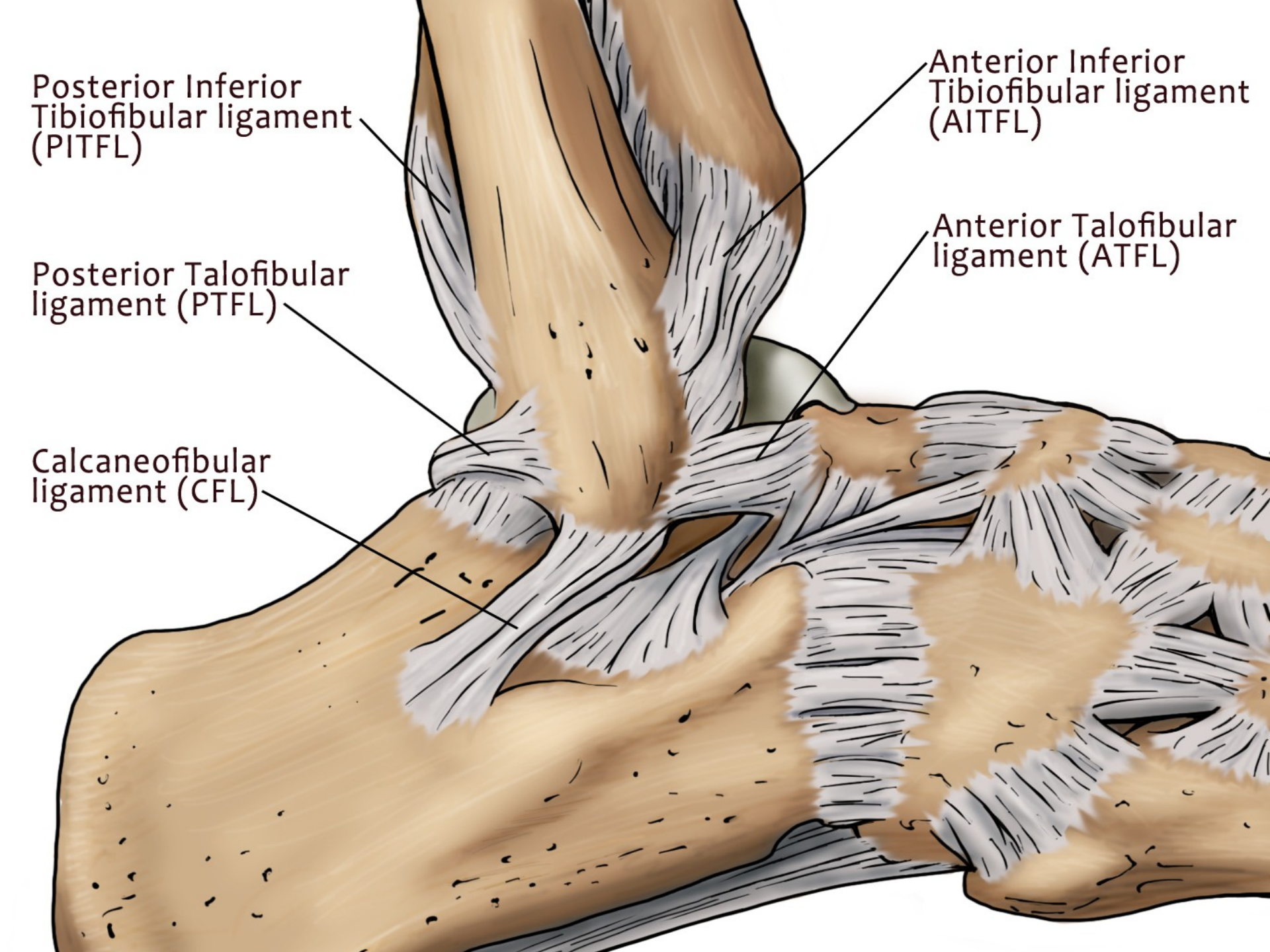
PAUSE ;)

ANKLE

One of the most common injuries

– it affects all groups of people (children, old people, sportsmen, women, men, smokers, atheists, believers)

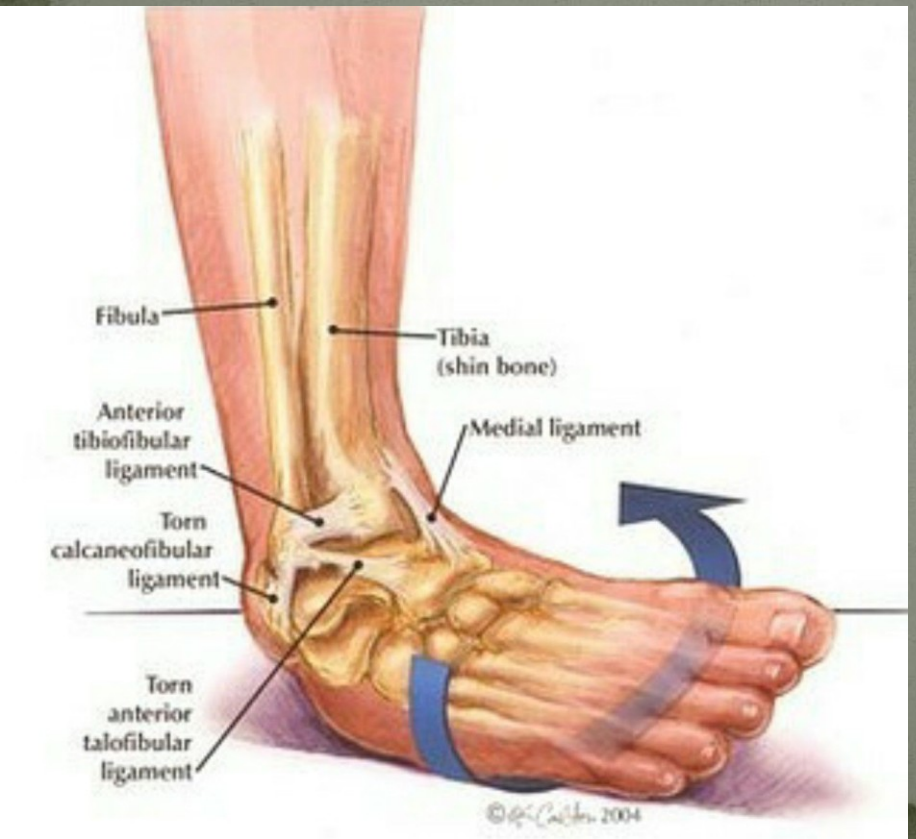
Character of injury: soft-tissue injury, bone injury, sprains,...


Posterior Inferior Tibiofibular ligament (PITFL)
Anterior Inferior Tibiofibular ligament (AITFL)
Posterior Talofibular ligament (PTFL)
Anterior Talofibular ligament (ATFL)
Calcaneofibular ligament (CFL)

Distorsion of art. talocruralis – ankle joint

It doesnt cause instability, unlike in dislocations

Damage to sof-tissues, ligaments



GRADES:

GRADE 1

- Some swelling and stiffness
- Slight stretching and tearing of the ligaments
- Still stable enough to be walked on

GRADE 2

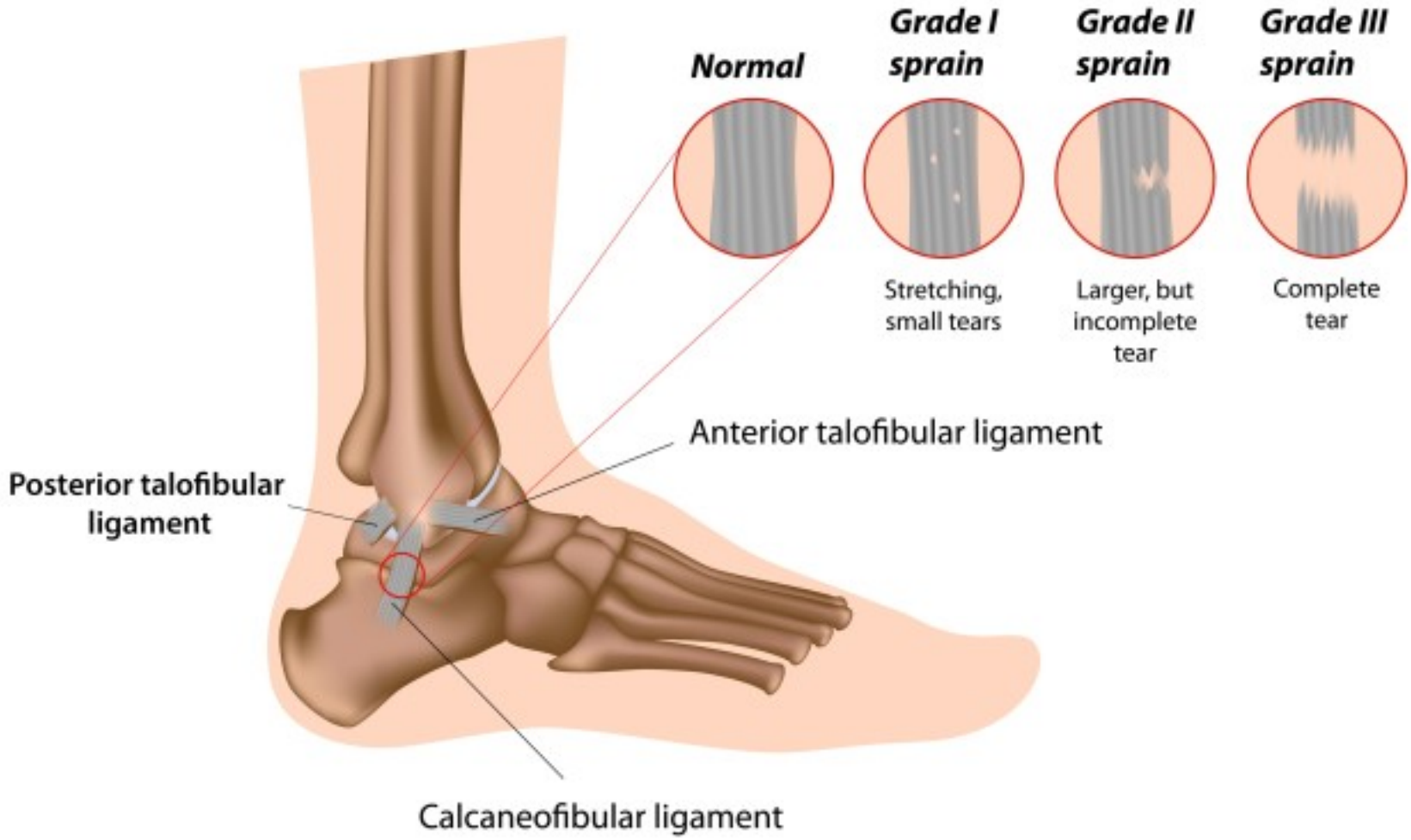
- A bit more ligament tearing, bruising and swelling
- Less secure to walk on

GRADE 3

- Ligament is fully torn
- Severe pain and swelling
- The ankle needs immobilization to heal properly

http://orthoinfo.aaos.org/topic.cfm?topic=a00150

Grades of Ligament Sprain



Most often an injury to lateral ligaments of the knee joint

EXAMINATION:

-mechanism of injury, repeatedly same injury?

-inspection

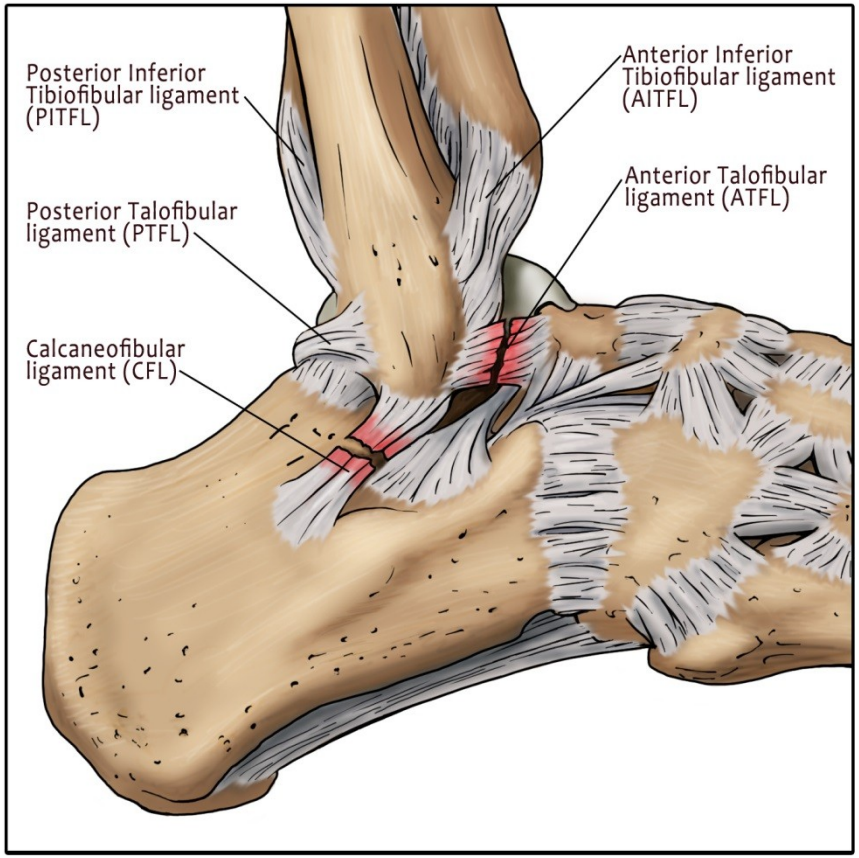
-palpation

-movement

- X-ray (supinatio, pronation, AP movement of talar bone)
- !!! Always compare with opposited side!!!
- outer/inner ankle

Ligaments of outer ankle: lig. fib-tal. Ant. (FTA, PTFA,CFA

Inner ankle: lig.Deltoideum



X-ray

′TESTING:

Squeeze test (Hopkins test): squeezing fibula agains tibia in the middle third – pain in distal part of tibio-fibular joint represents possible injury to syndesmosis

Anterior drawer test: testing integrity of the knee joint in AP way (LFTA,PTFA)

Talar tilt test: test integrity of calcaneo-fibular ligament

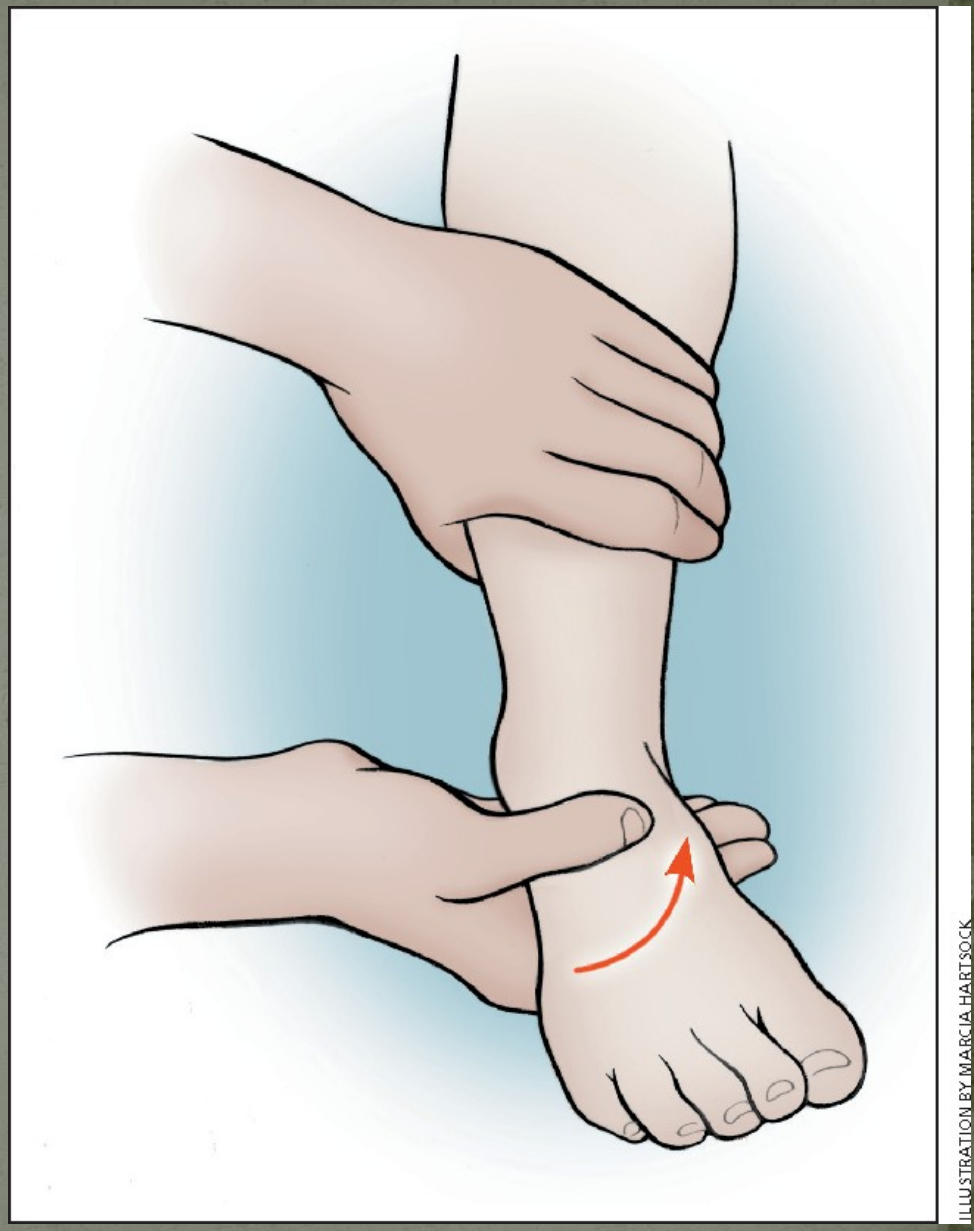


ILLUSTRATION BY MARCIA HARTSOCK

SHOULDER:

Dislocations, fractures, rotatory cuff injuries

Dislocations of shoulder joint

Anatomy: most mobile joint – small articul. surface of glenoid, huge humeral head

Static and dynamic stabilizers:

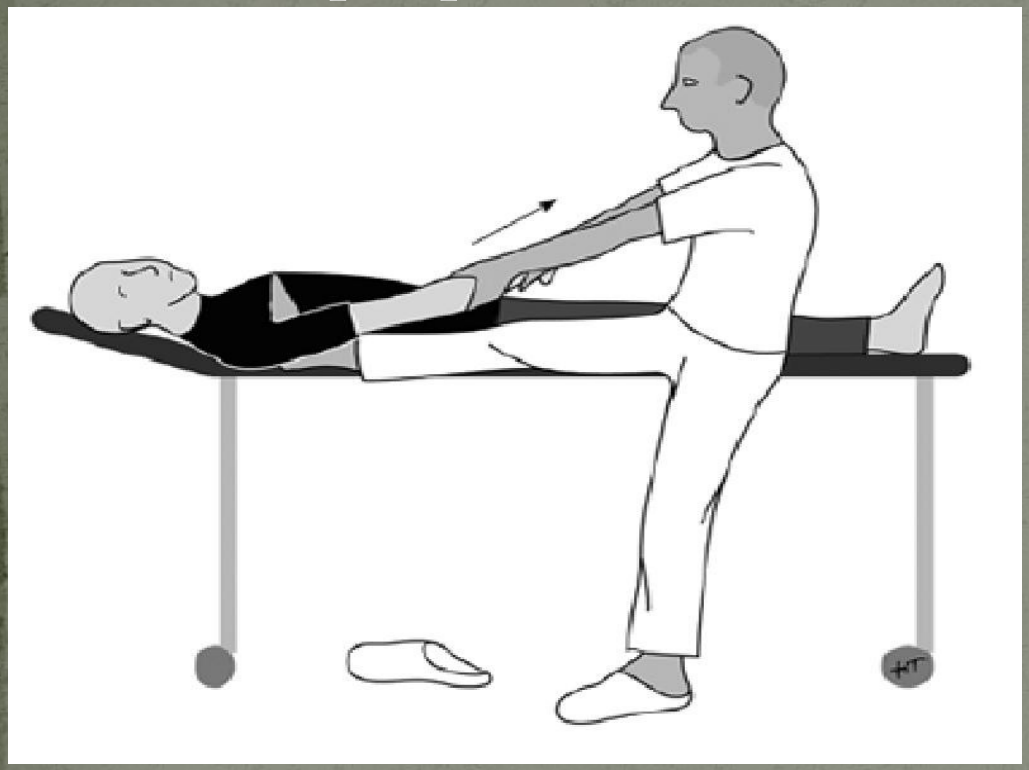
-static: labrum, capsule, lig. Transversum, lig. coracohumerale

-dynamic: m.deltoideus, rotatory cuff, tendon of m.bicip.brach.

Diagnosis: anamnesis, aspection, palpation, Xray, neurologic examination?

Reduction techniques:

Hippocrates – pull in longitudinal axis– we put our heel in patients armpit/pull with towel, extremity in slight extrarotation



Artl – shoulder over back-rest of chair, extremity pulled in longitudinal axis, slight extrarotation converted to intrarotation, adduction

Tips:

- firstly send patient to X-ray
- control perifery, movement, circulation
- - control X-ray after reposition
- verbal analgetisation
- always find out how old the dislocation is
- careful and technically right reduction to minimize the risk of iatrogenic injury (Bankart, Hill-Sachs lesion, fractures)

Rotator cuff

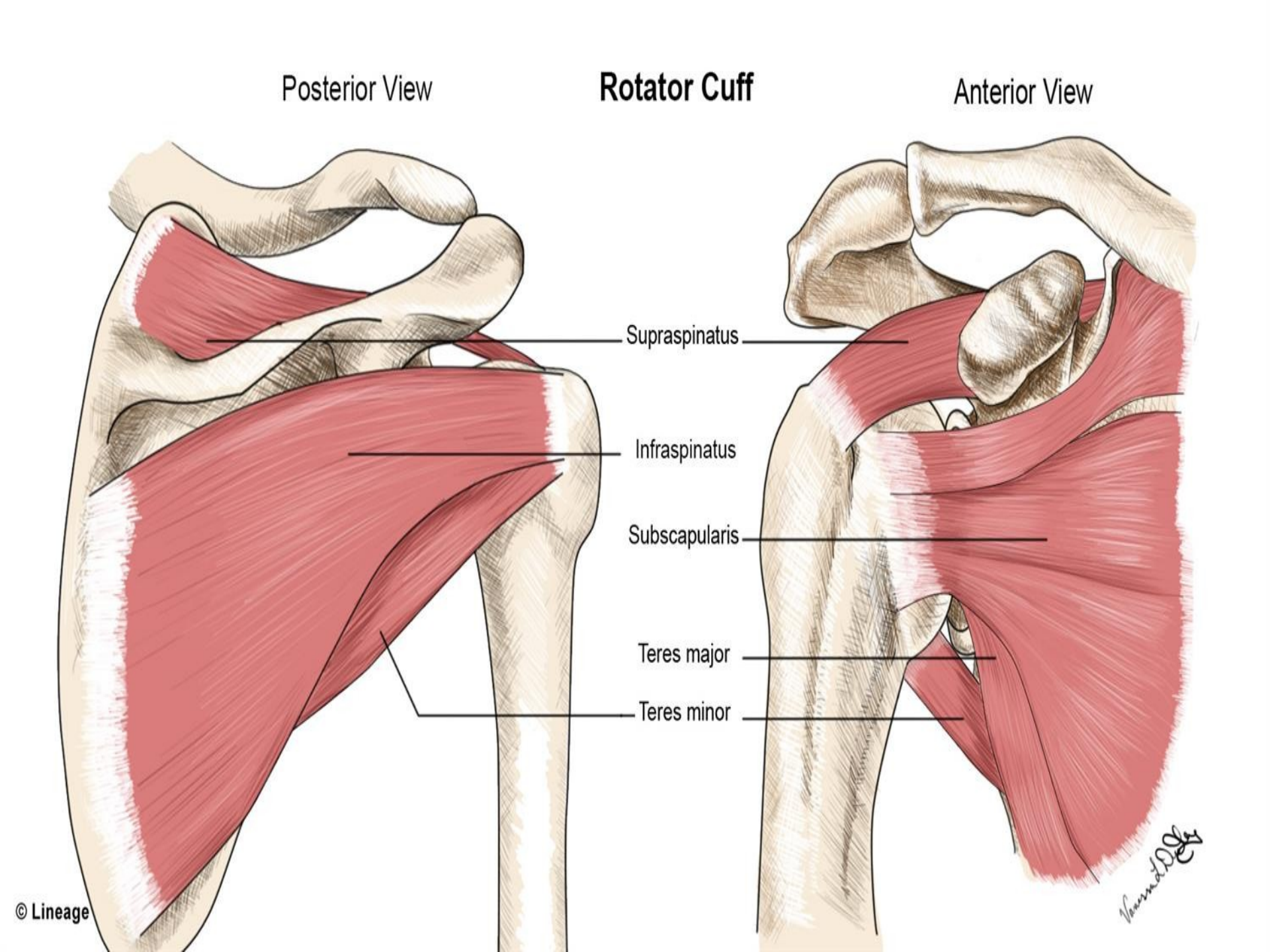
Common insertion for four shoulder muscles–

anterior portion- m.subscapularis

cranial portion– m.supraspinatus

posterior portion- m.infraspinatus, m. teres minor

40% of adult population over 60 yrs old has extensive lesions of RC


Posterior View
Rotator Cuff
Anterior View
Supraspinatus
Infraspinatus
Subscapularis
Teres major
Teres minor
© Lineage

Examination

- signs: pain,oedema, weakness, decreases motion,asymetry, defiguration, haematoma, atrophy, pain in SA region
- Acute trauma: usually pain is located vento-lateral- lack of actie movement (impossible abduction)

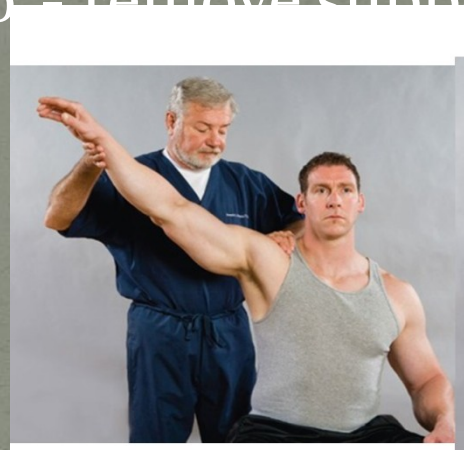
- If neurological/vascular deficit or bone trauma is not present, and patient is painful – delayed examination might help
- compare to opposite side

Tests:

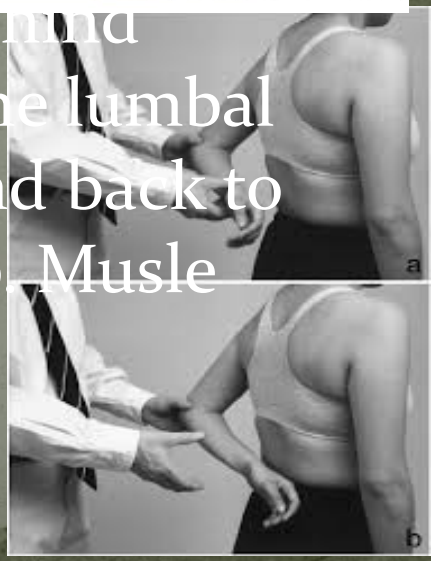
- M.supraspinatus - <u>empty can test</u> –

-tenderness when elevating against the physician

<u>-drop arm test –</u> elevate above 90°- remove support-inability to control the fall of the arm

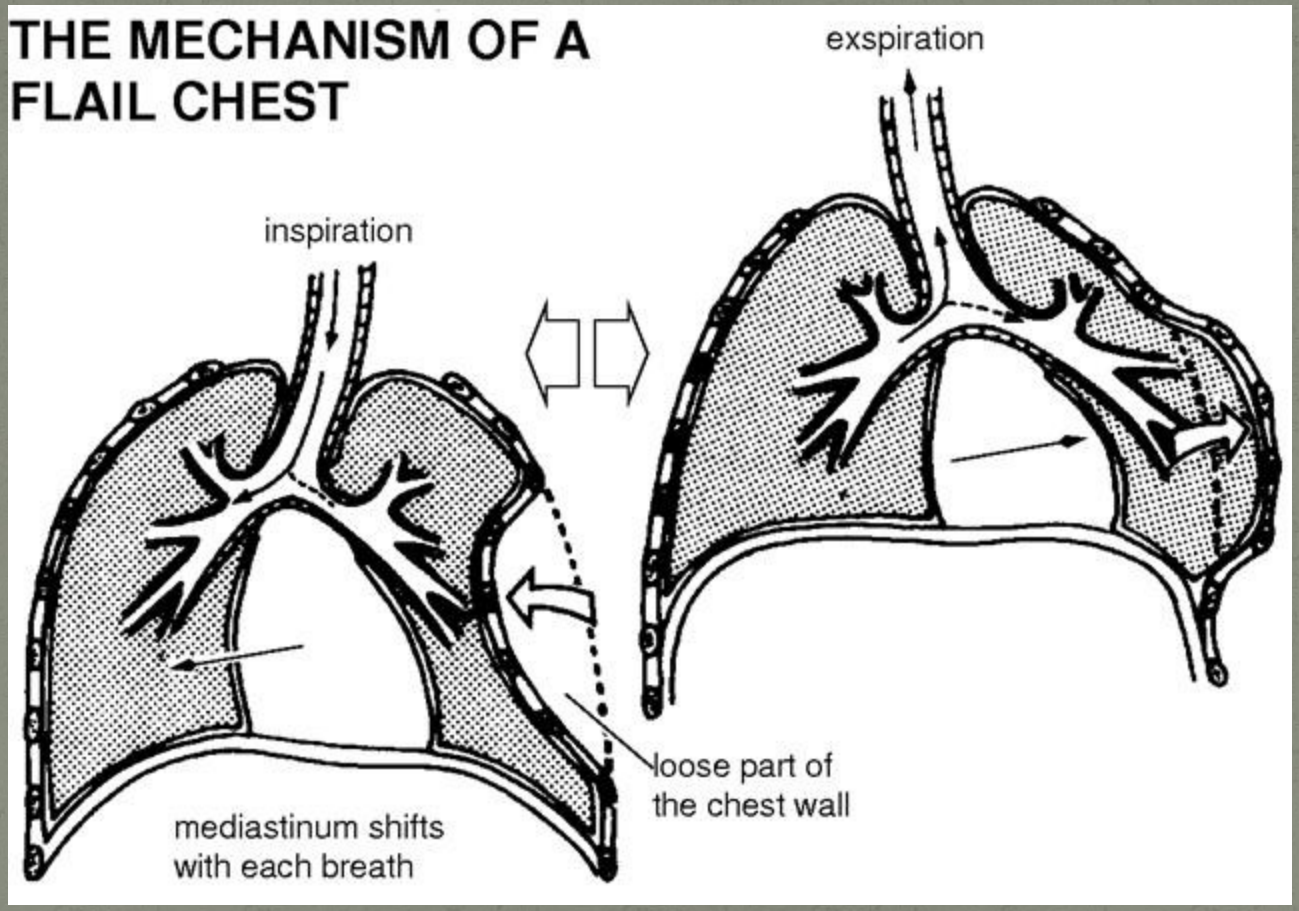


M.subscapularis - <u>lift-off test –</u> place extremity behind patients back, back of the hand pressed against the lumbal part of the back, then ask the patient to move hand back to front- deficit in intra-rotation as a sign of subscap. Musle injury

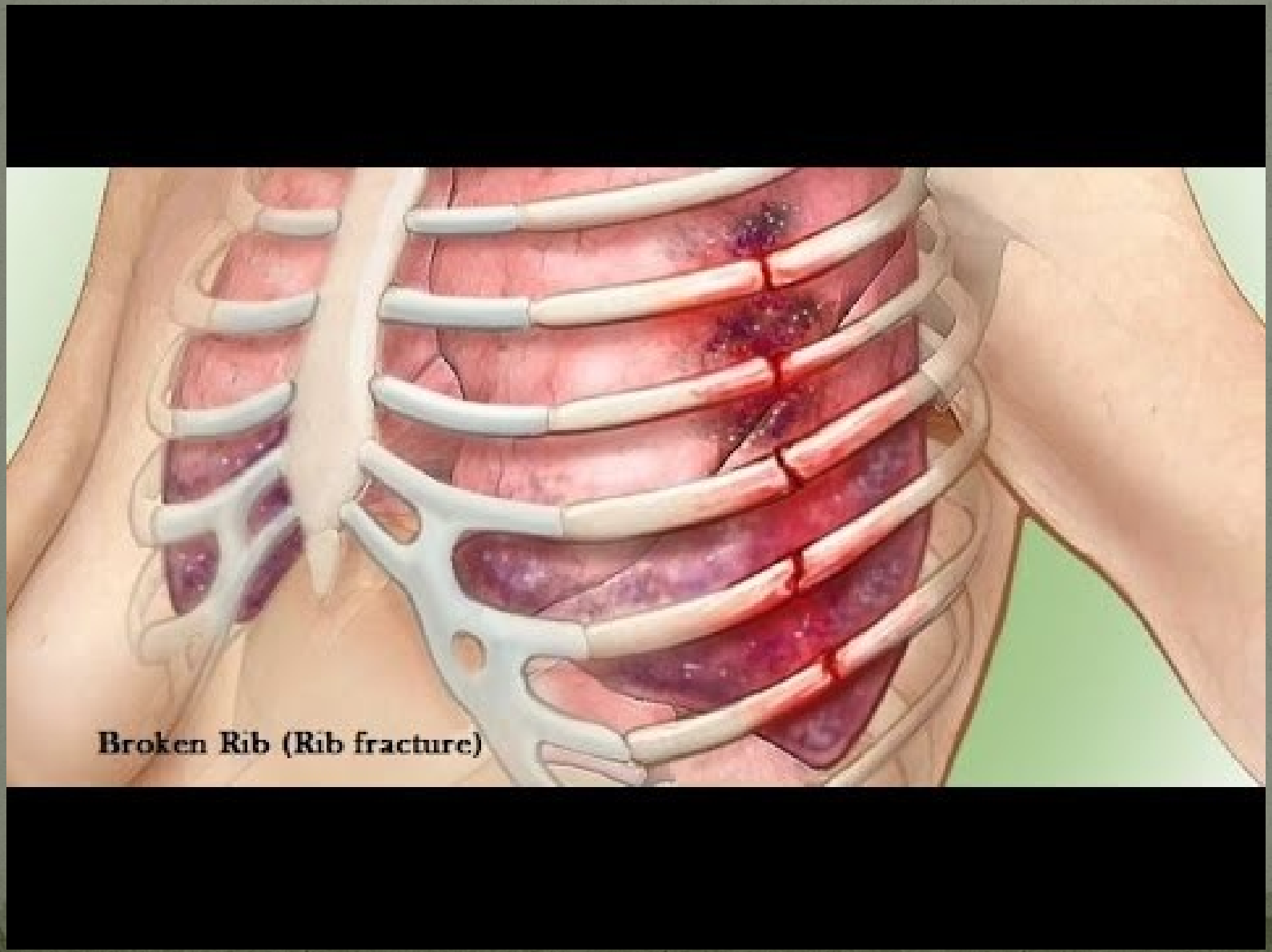


M. infraspinatus/m.teres minor- rameno při tělě, loket flektován v 90°, lékař tlačí proti extrarotaci – emituje bolest při defektu

Thoracic injuries:

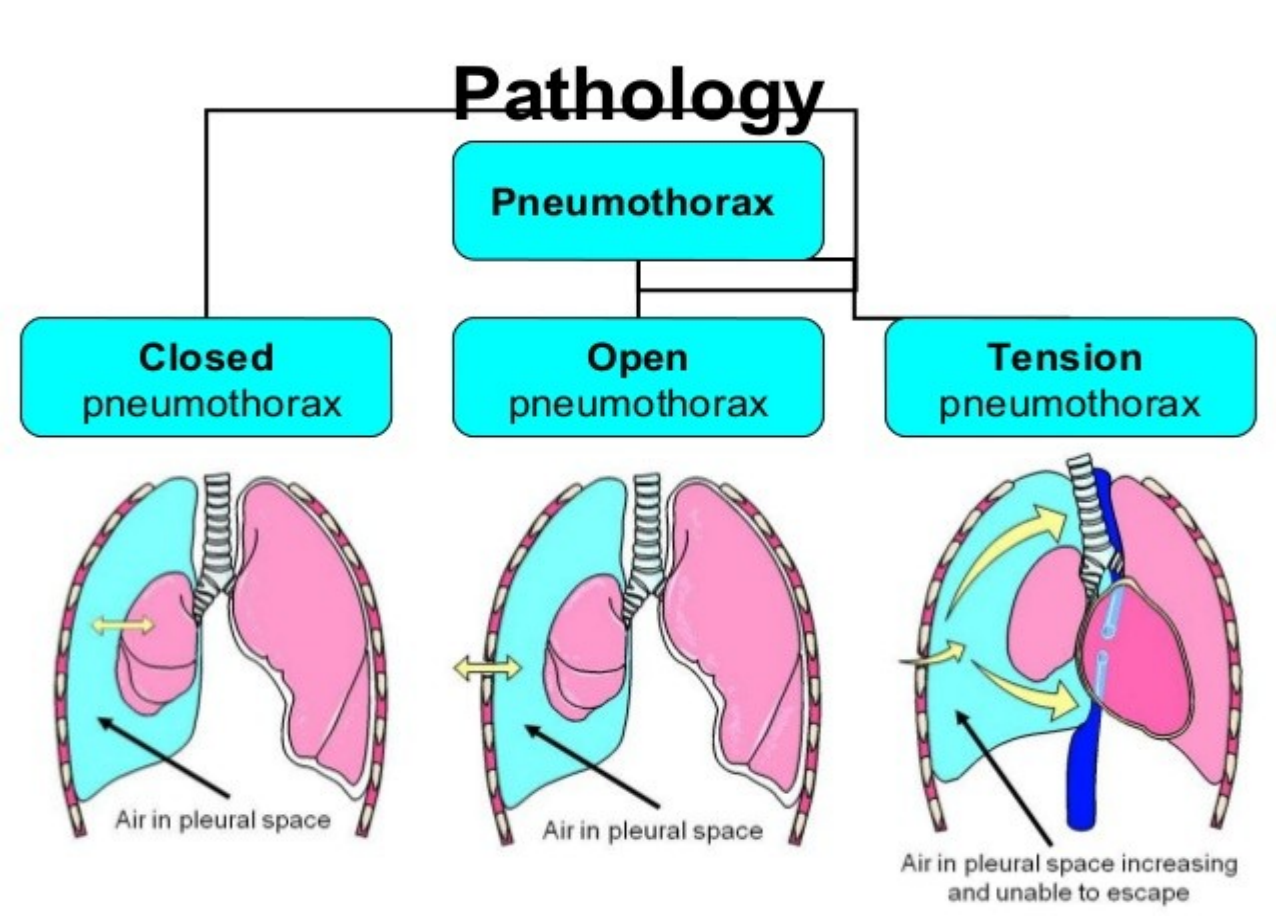

THE MECHANISM OF A FLAIL CHEST
exspiration
inspiration
loose part of the chest wall
mediastinum shifts with each breath

Rib fractures



PNO – pneumothorax

- according to size,- total, partial (apical,restrosternal, sheath)
- present in 50% of all blunt thoracic injuries
- opened, closed, tension



Diagnostics

-anamnesis, clinical finding, absence of unilateral breaht sounds, respiratory thoracic excursions decreases, hypersonor tap on thorax

Tension PNO: tracheal deviation, ⬆ increase of jugular veins volume, cyanosis, respiratory failure/insufficiency, hypotension

X-ray might be a luxury you dont have !!!!

CAVE !!!

Fractures of 3 or more ribs
Hemothorax
Ventilation insufficiency
Pathological breath sounds
Control X-ray – stating the dynamics
Examine the amount of TROPONIN, ECG!!!
Caudal ribs, especially on left side!!!
Block fractures – admit to hospital
Breath exercises
Regime

Proximal femur fractures

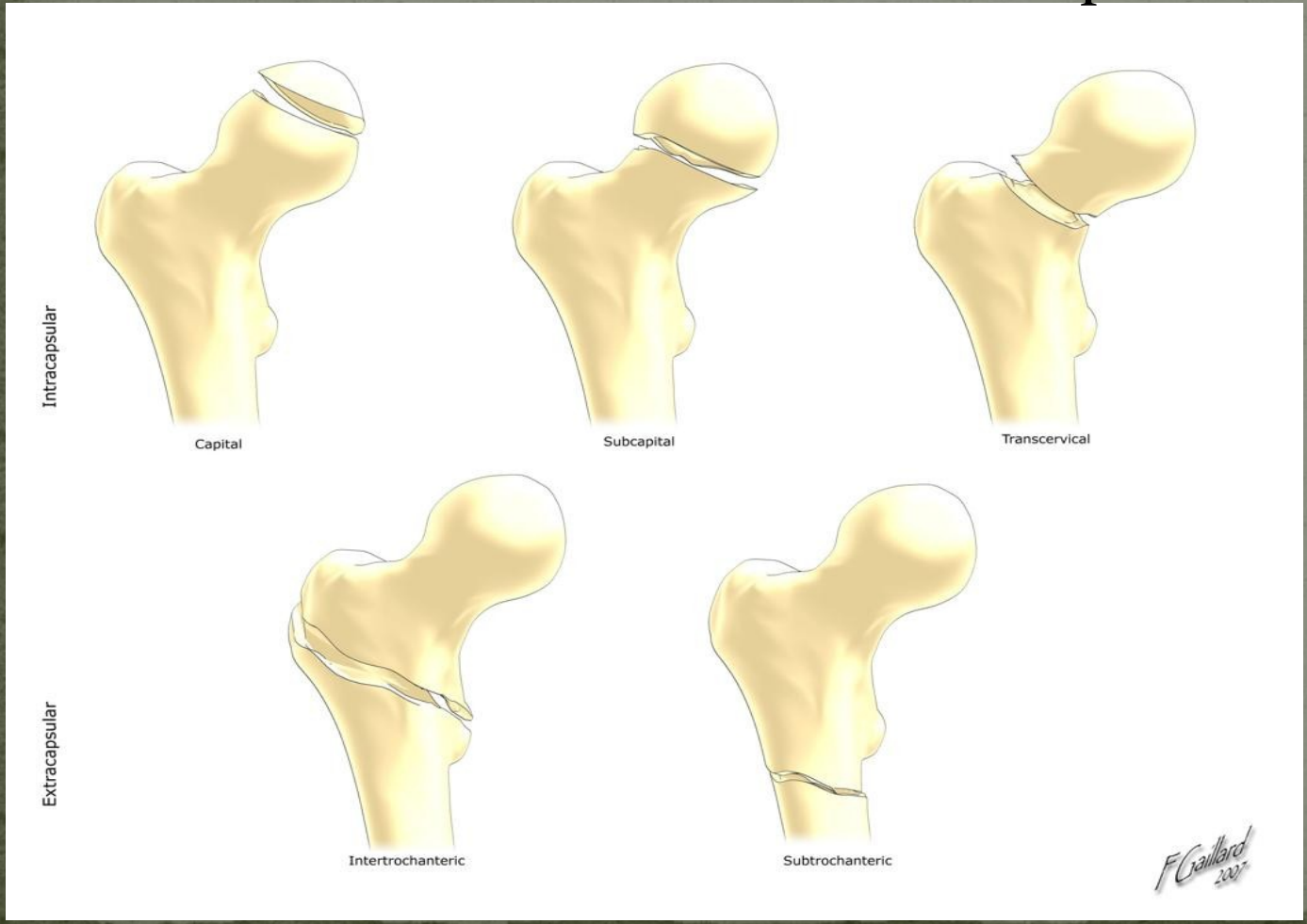
Proximal femur fractures:

- common fractures
- substantial social, medical, and economical problem
- 80% of patients older 70 yrs
- young adults – due to high energy trauma incidents
- risk factors, prophylaxis
- - complications– pneumonia hypostatica, thrombolembolia, infectus urogenitalis, decubitus, necrosis aseptica

Division:

Proximal femur fractures:

- fr. of femoral head
- -fr. of femoral neck – intra/extra- capsular

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R

Vyšetření:

Anamnéza, aspekce, palpace

- fr. hlavice femuru – antalgické postavení, extrarotace, zkrácení pouze při luxaci
- - fr. krčku femuru- zkrácená, extrarotace končetiny

Doplnění: Odběry, RTG, při pochybnostech či komplexitě poranění doplnění CT, RTG S+P při příjmu

CAVE: Neopomenout příčinu pádu pacienta/pacientky!!!

Vertebral column

Examination, diagnostics

Brain concussion

Definition: Shortly lasting unconsciousness, with spontaneous improval, retrograde/antegrade amnesia, without local neurological deficit

- signs
- diagnostics
- examination procedure

In fact, it is considered as light axonal injury

„PRAKTICAL PART“ ☺

Casuistics+patients examination