

COMMON DISLOCATIONS AND REDUCTION TECHNIQUES

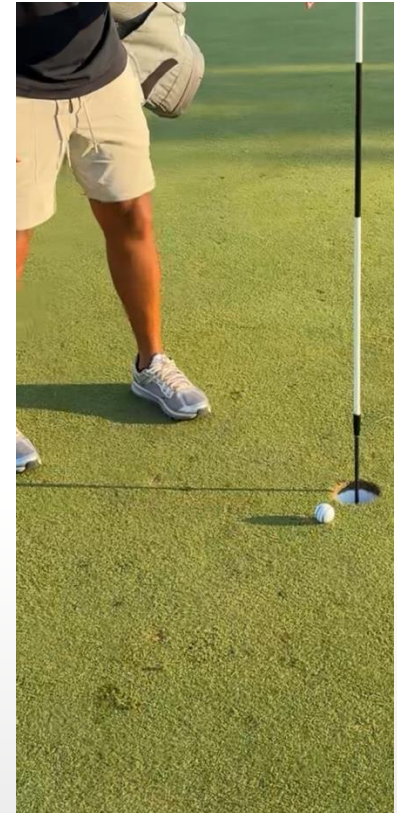
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NAPA PRIMARY CARE
CONFERENCE 2025



DISCLOSURES

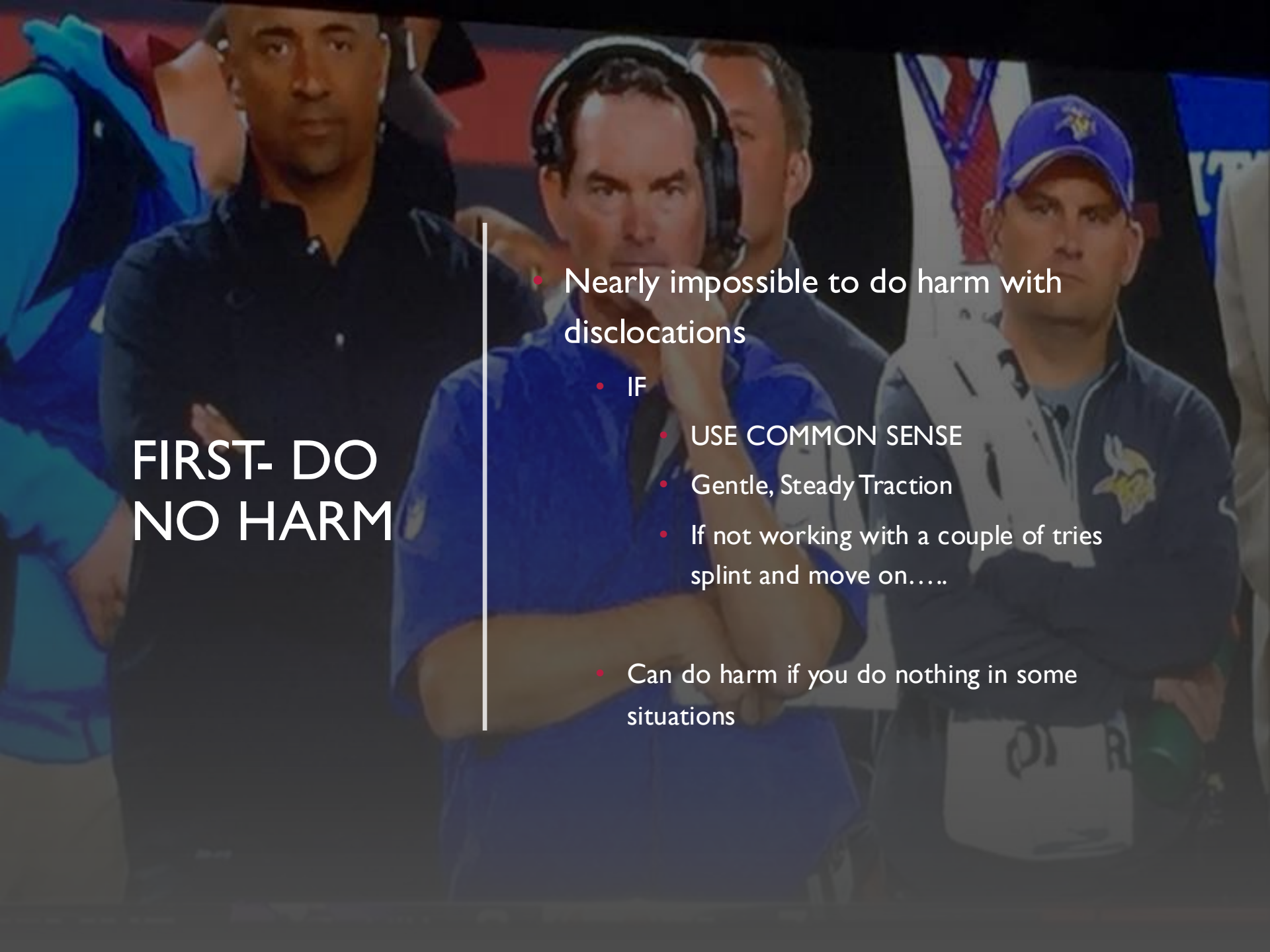
- NONE



JOINT DISLOCATIONS

- Dislocations
 - simple
 - uncomplicated
 - tricky
 - limb threatening
- Most common dislocations-
Finger, elbow, shoulder
- Early treatment reduces pain and
often can be done with minimal
or no anesthesia





FIRST- DO NO HARM

- Nearly impossible to do harm with dislocations
 - IF
 - USE COMMON SENSE
 - Gentle, Steady Traction
 - If not working with a couple of tries splint and move on.....
- Can do harm if you do nothing in some situations

JOINT DISLOCATIONS – GENERAL PRINCIPLES

Carefully assess anatomy

- Dislocation versus displaced fracture

Check and document
neurovascular status pre and
post reduction!!!

- Most neurovascular injury occurs at the time of the injury not as a result of reduction
- Treatment of a dislocation with neurovascular compromise IS reduction

DISLOCATION PEARLS

- In-line traction will reduce many dislocations acutely and is safe to attempt for even in-experienced clinicians
 - “Just pull on it”
 - Exception
 - MCP dislocations



PEARLS
FRACTURES
SWELL, INITIALLY
DISLOCATIONS
DON'T.....



JOINT DISLOCATIONS

- concern for a fracture does not mean relocation should not be attempted
 - Level of experience will dictate comfort
 - Difficult to make a fracture worse with moderate force application



FRACTURE DISLOCATION



DISLOCATION OF THE FINGER

- Dorsal PIP most common
 - PIP and DIP treated the same
- Volar dislocation are unusual and generally require more extensive treatment.
- X-ray not necessary prior to reduction (games/practices). Post reduction x-ray to evaluate alignment and look for fracture
- Buddy tape or splint post reduction

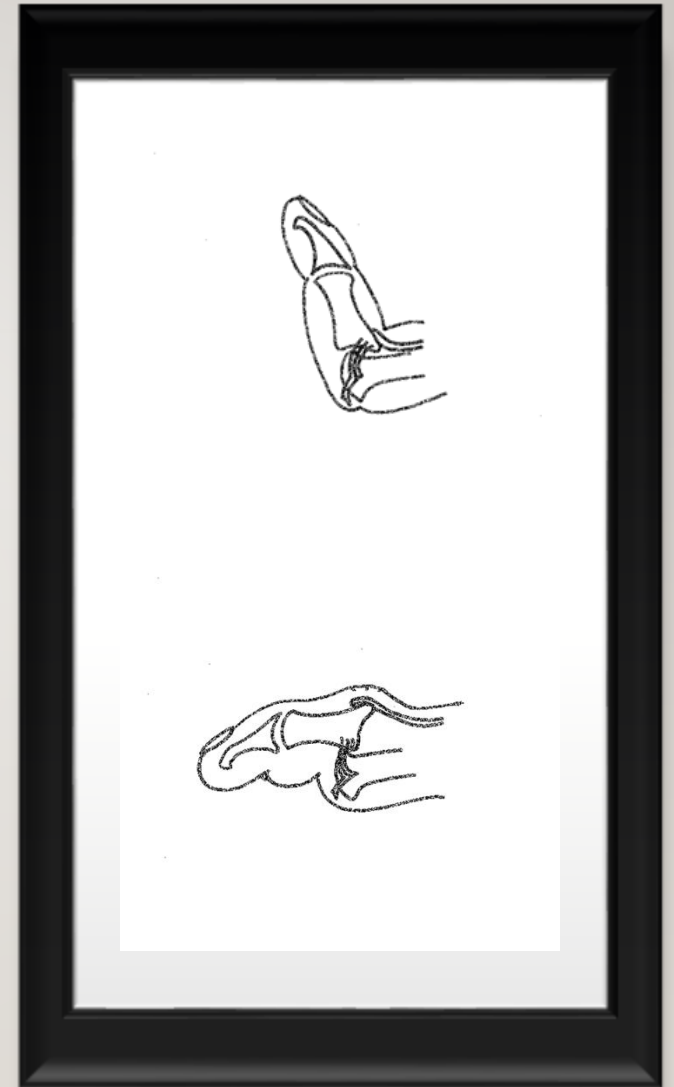


PHALANGEAL JOINT DISLOCATIONS

- Place thumb proximally behind dislocated joint
 - Slight extension can help
- Apply gentle steady in-line traction increasing force as needed.
- May need digital block if unable to reduce (rare)
- Soft tissue interposition may occur
 - Requires significant hyperextension
- “Stand behind technique”



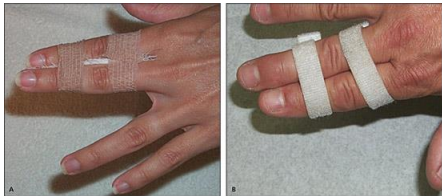
DIFFICULT FINGER- MORE EXTENSION!!



EXTENSION!!



PHALANGEAL JOINT DISLOCATIONS



- No instability
- Buddy taping until pain resolved
- Instability
- Extension block splint
- Consider referral
 - Avulsion injury of greater than 1/3 joint surface
 - Significant joint instability

PITFALLS WITH FINGER DISLOCATIONS



- MCP joint dislocation are more difficult to treat
- Never use longitudinal traction (don't pull straight out on them)
- Entraps the metacarpal head in already tightened soft tissues or pull the volar plate into the joint, converting a simple dislocation into a complex dislocation.

MCP DORSAL JOINT DISLOCATIONS



- Consider **local anesthetic or intravenous sedation**.
- Apply pressure over the dorsal proximal phalanx, gently pushing in a palmar and distal direction, while simultaneously placing the (MCP) joint into flexion.
- Flexing the wrist initially may aid reduction by relaxing the flexor tendons.
- Maintain reduction in dorsal splint with the MCP joint flexed 30°.

PITFALLS WITH FINGER DISLOCATIONS

- Rolando fracture
- Bennett's fracture
- Both generally require surgical intervention and can look like a CMC dislocation of the thumb



ELBOW DISLOCATION



- Relatively common sports injury
- FOOSH - fall on outstretched hand
- Almost always posterior
- Maybe my favorite

ELBOW DISLOCATION



Figure 1a: A complete elbow dislocation .

ELBOW DISLOCATION- REDUCTION



Relatively safe to attempt
without pre-reduction
radiographs



Reduction relieves pain



Many are perched and reduced
easily



Always perform neurovascular
exam prior and post

SIDELINE REDUCTION

- Gentle attempts at reduction on the field may be attempted
- Use one hand to stabilize the forearm and apply traction
- Use the other hand to stabilize the distal humerus and apply pressure to the olecranon
- Your counter traction is the key!!!!



ELBOW DISLOCATION-REDUCTION



- Place the patient in a prone position with the affected elbow flexed at 90° and the humerus supported by the table.
- The hand of the affected arm should be pointing toward the ground. Apply downward traction to the forearm, which is held in slight pronation, while using the other hand to grasp the humerus
- Apply pressure to the olecranon in a medial and downward motion to facilitate reduction
- Bring the elbow slowly into extension.
 - Reduction generally occurs at 30°

POST - REDUCTION

- Repeat neurovascular exam!!!
- Sling $\pm$ posterior splint initially if x-ray not done or available
- Obtain x-ray
- Gentle valgus testing at 30° will help check for stability.
 - If comfortable check at full extension-
 - Caution may cause unstable elbow to re-dislocate
- If stable use sling and start early ROM
 - Better ROM, less pain and better functional scores with early ROM compared to plaster splinting * [B]
- If unstable- posterior splint and referral.

ELBOW DISLOCATIONS

- Immediate referral for neurovascular compromise
- Immediate referral for fractures



POST-REDUCTION

- Return to play
 - Full ROM
 - May lose ability to fully extend
 - Full strength
 - Generally 3-6 weeks
 - Often faster!
- Consider bracing

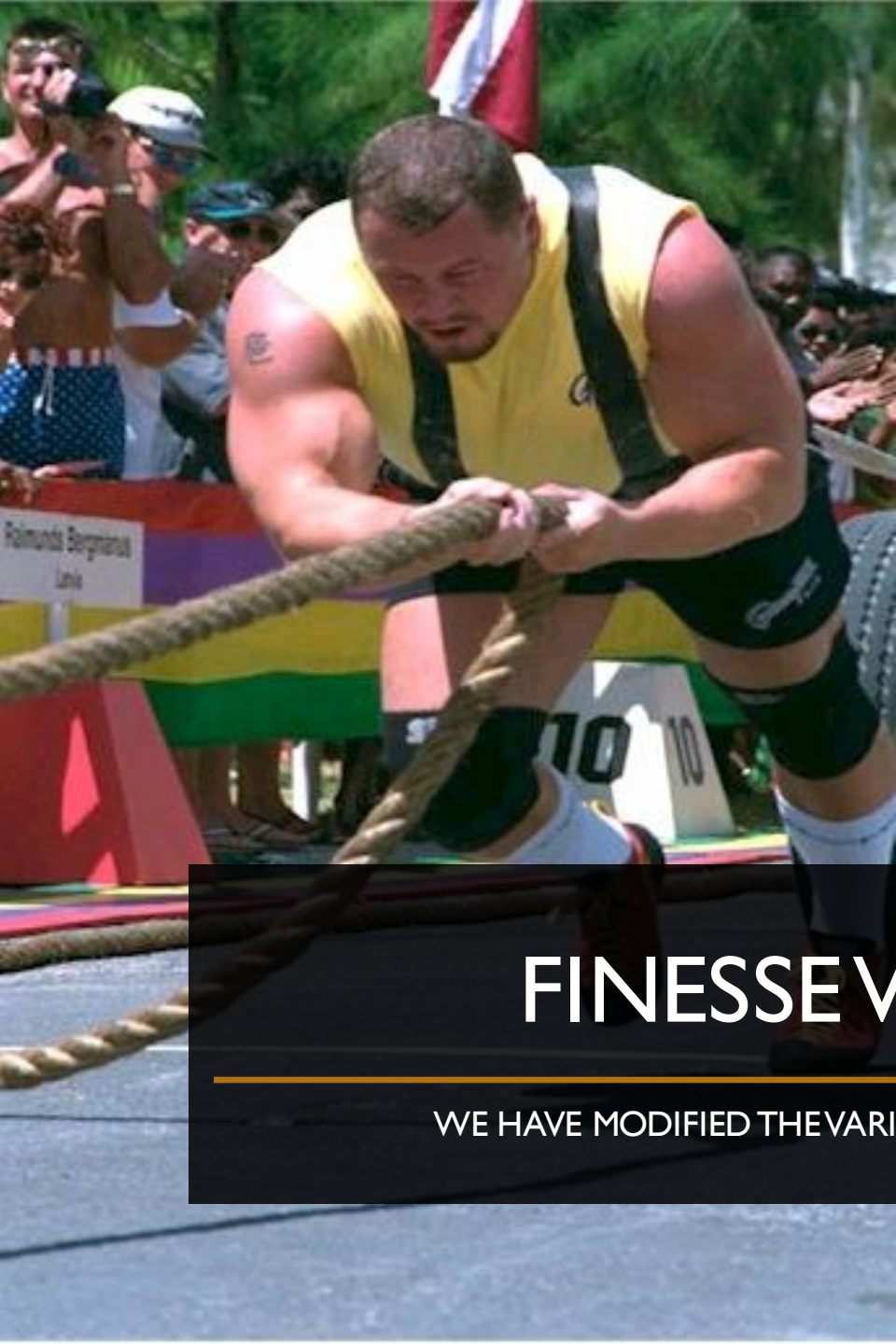


SIDELINE REDUCTION OF GLENOHUMERAL DISLOCATIONS WITHOUT ANESTHESIA

GENERAL PRINCIPLES

- Early reduction when possible
 - Pre reduction radiographs not usually necessary [A]
- Rule out associated injuries
- Establish calm control
- Take some time, relax the patient, overcome the muscle spasm





FINESSE VS FORCE

WE HAVE MODIFIED THE VARIOUS REPORTED TECHNIQUES

GENERAL PRINCIPLES

- Identify the resting position of the humeral head in relation to the glenoid.



GENERAL PRINCIPLES

Chose most comfortable position to effect Humeral traction and scapular stabilization

Seated for minimal stabilization & traction.

Prone for moderate stabilization & traction

Supine for maximum stabilization and traction

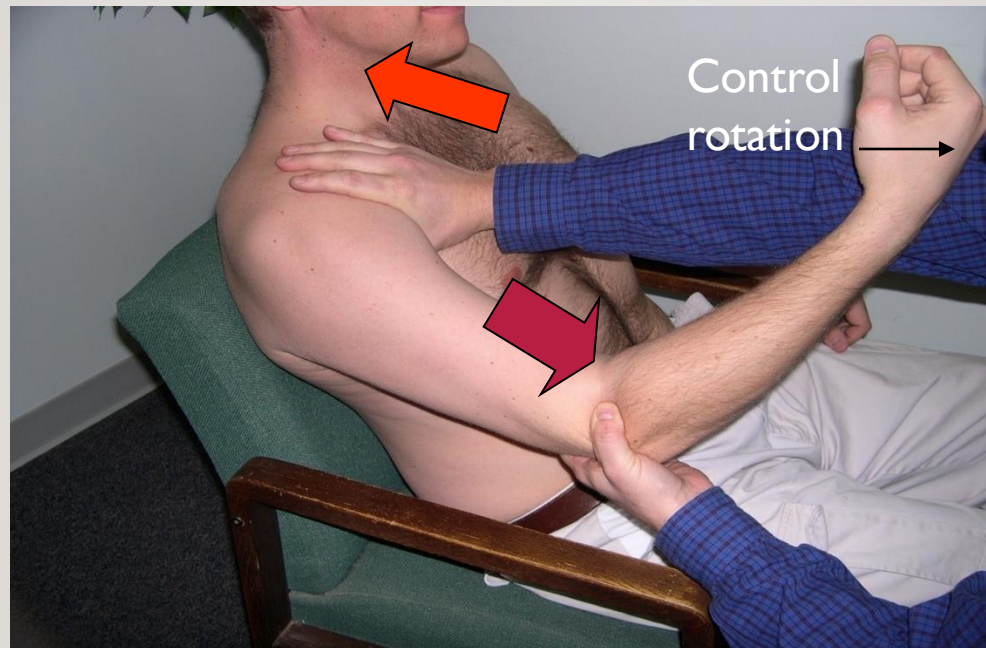


Find position of relative comfort

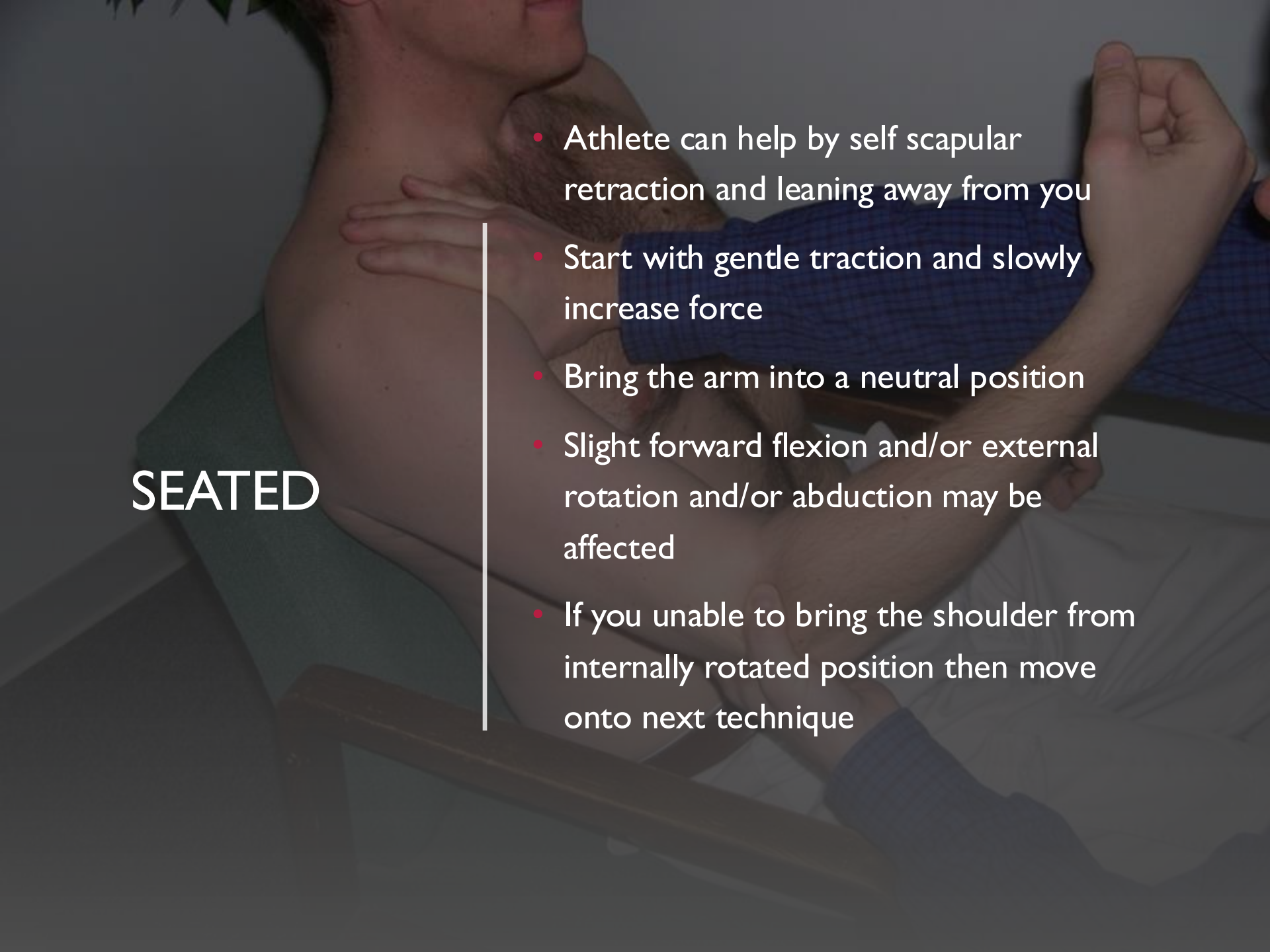


Coach relaxation and breathing

SEATED FOR MINIMAL STABILIZATION & TRACTION.



- Good for “perched” anterior inferior dislocations if the patient is relaxed and you can achieve a neutral humeral position.



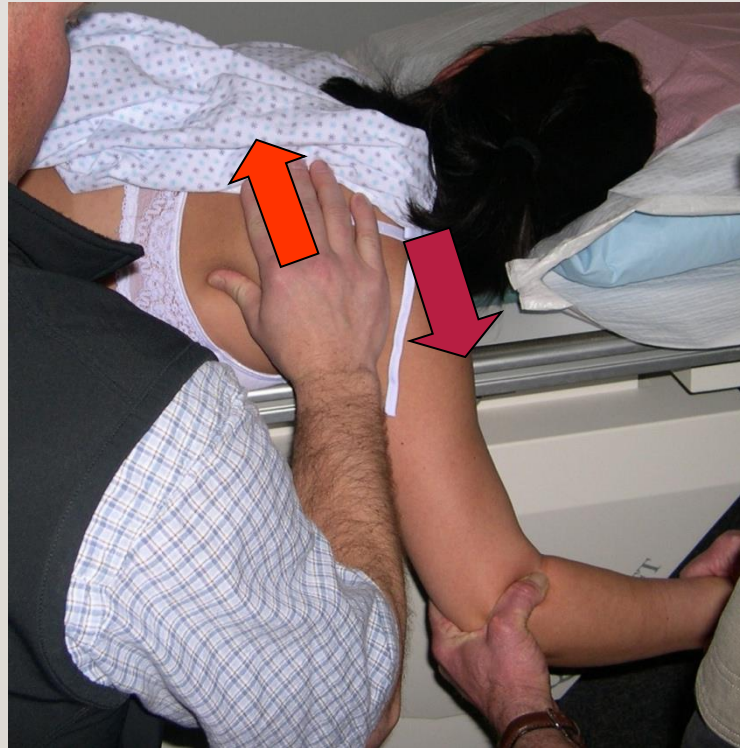
SEATED

- Athlete can help by self scapular retraction and leaning away from you
- Start with gentle traction and slowly increase force
- Bring the arm into a neutral position
- Slight forward flexion and/or external rotation and/or abduction may be affected
- If you unable to bring the shoulder from internally rotated position then move onto next technique

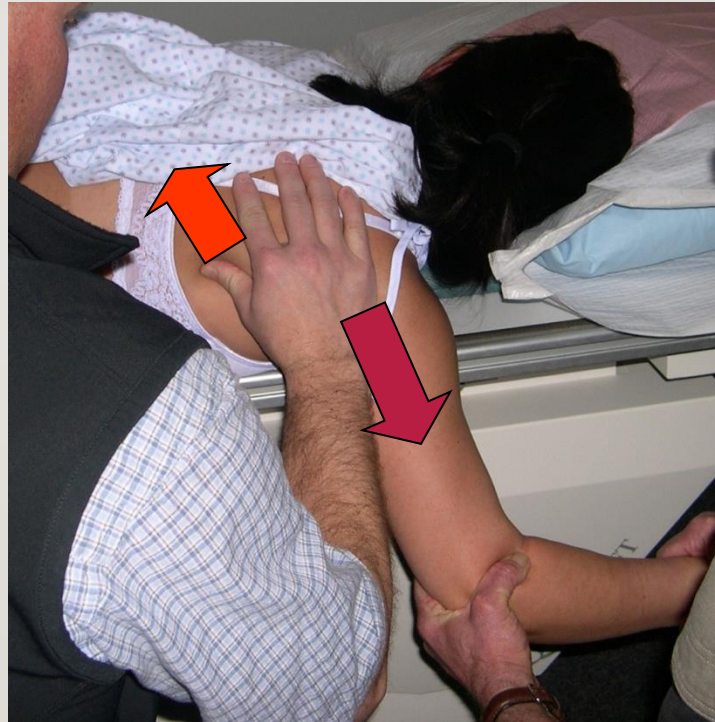
TAKE IT HOW IT WANTS TO GO



PRONE POSITION FOR EXCELLENT SCAPULAR **STABILIZATION** & MODERATE **TRACTION**

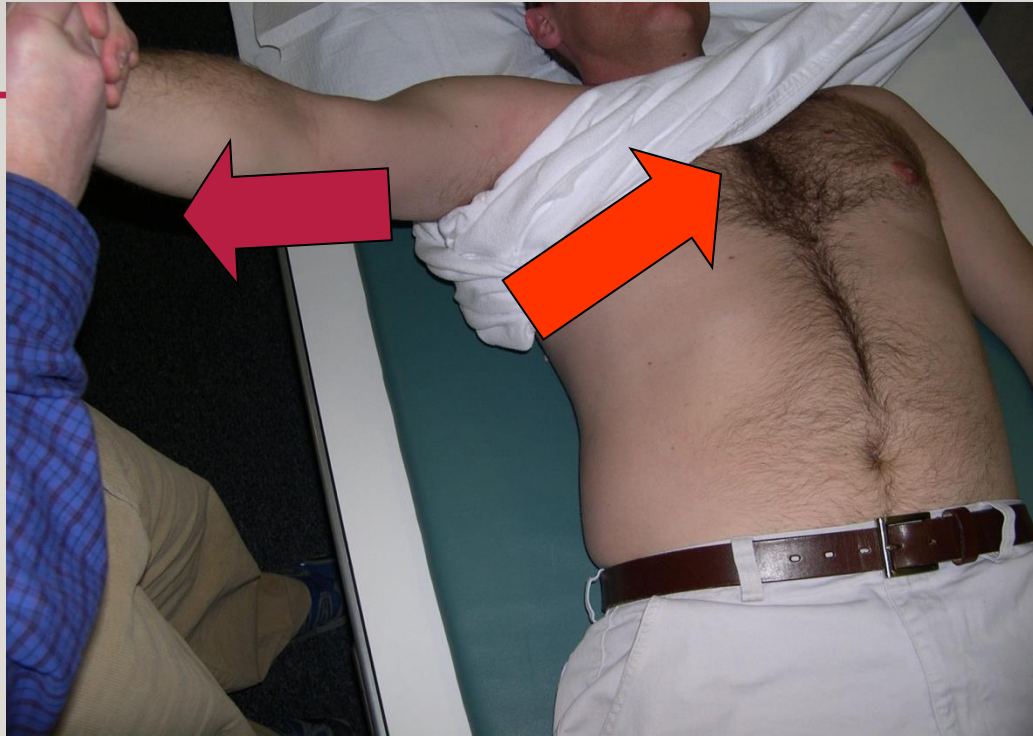


START WITH MILD HUMERAL TRACTION & THEN ADD SCAPULAR MANIPULATION



- Pull down to disengage the locking mechanism(window shade)
- Try to avoid letting the humeral head “clunk” in.

SUPINE FOR MAXIMUM STABILIZATION AND TRACTION

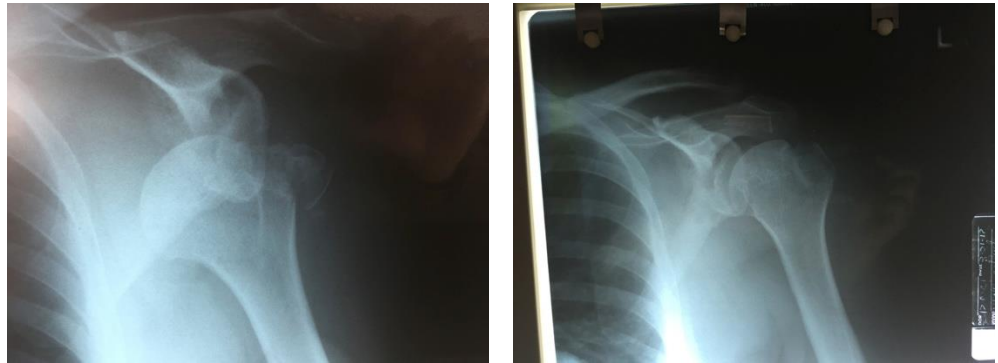


- Counter traction w/ bed sheet is usually required for ant./inf. dislocations w/ fractured greater tuberosity

GET THE TOWELS OUT!!

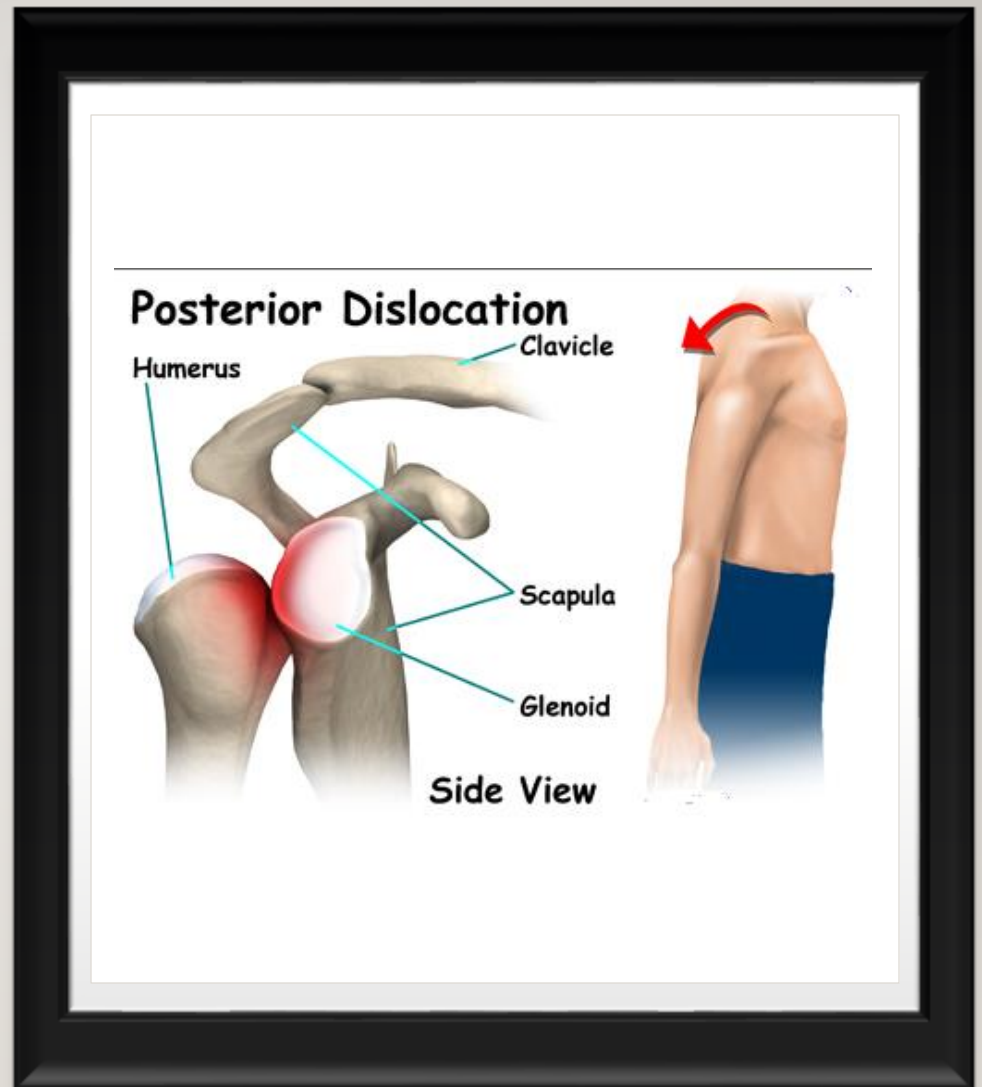


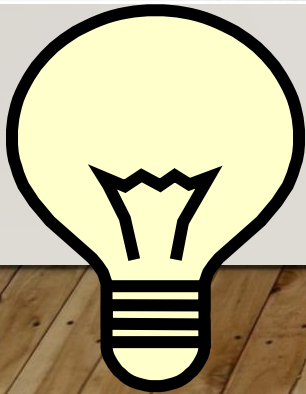
PRE AND POST REDUCTION



POSTERIOR SHOULDER DISLOCATION

- Less common
 - 2-4% of shoulder dislocations
- Traditionally associated with seizures
 - Electrocutation
 - Sometimes sports!
- Complications include reverse Hill-Sachs, fractures and rotator cuff tears





Light bulb sign

POSTERIOR SHOULDER REDUCTION

- Prone position
- Traction/counter traction
- Traction first in abduction
- Then bring into forward flexion



POST-REDUCTION MANAGEMENT

- Sling – regular if stable
- Gunslinger if unstable in IR
- RTP will be based on stability and if any surgical intervention
- Sully brace on return



"Relax - it's probably just dislocated."



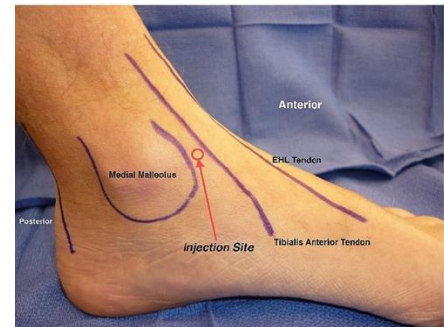
ANKLE

- Maybe with or without fracture
 - Often easy reduction with fracture but unstable
- Attempt can be made without anesthesia
- Hematoma blocks are effective



HEMATOMA BLOCK

- Needle is advanced, it is common to impact the Talar dome.
- Simple repositioning of the needle in a more cephalad angle
- Once dark blood is aspirated, confirming the correct needle position, 10 to 15 mL of lidocaine should be injected
- Wait 5-10 min



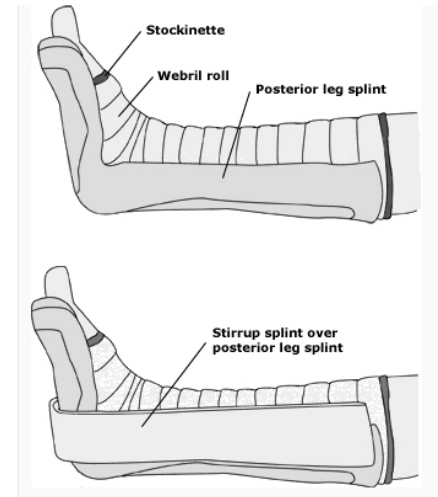
ANKLE REDUCTION

- Traction using calcaneus and midfoot
- If talus is lateral then IR may help
- If talus is medial then ER may help
- Keep knee slightly flexed to unlock gastroc complex



ANKLE DISLOCATION POST REDUCTION

- U-splint ± posterior splint
- X-ray
- Ortho referral



KNEE DISLOCATION – EAP TIME!!

- Commonly associated with peroneal nerve and vascular injury
- Often not attempted in pre-hospital setting
- Attempt at inline traction reasonable but do not delay activation of emergency medical system
- May spontaneously reduce so be suspicious in multi-ligament injury
- Regardless of success splint and send to ER ASAP for Vascular study!!



KNEE DISLOCATION



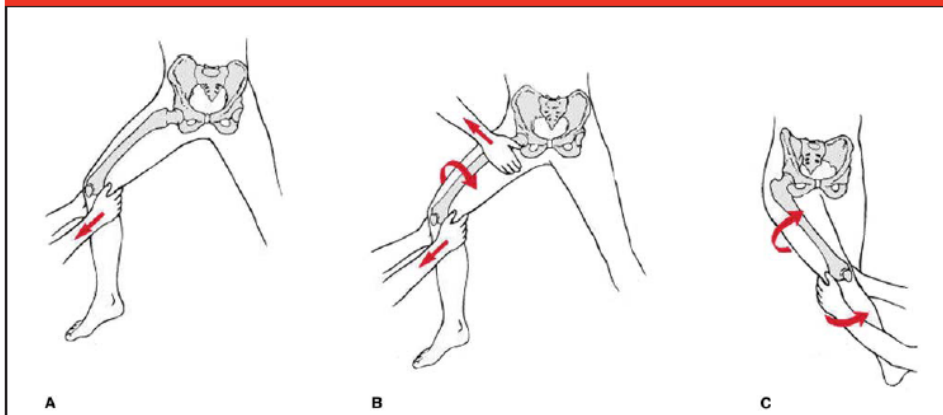
HIP DISLOCATION



- Emergency
- Early reduction reduces morbidity
 - AVN
- Almost all posterior in sports
 - hold the leg internally rotated and flexed across the midline.
 - Fx generally ER
- Concern for acetabular fracture should not deter attempt at reduction

ORIGINAL METHOD

Figure 2



The Allis maneuver for reduction of posterior hip dislocation. **A.** Anteriorly directed traction is applied to the affected limb. **B.** A combination of counterpressure and gentle internal and external rotation is applied to assist in an atraumatic reduction. **C.** Limb adduction and inline traction may further aid a successful reduction. (Reproduced with permission from Levin P: Hip dislocations, in Browner BD, Jupiter JB, Levine AM, Trafton PG, eds: *Skeletal Trauma*, ed 2. Philadelphia, PA, WB Saunders, 1998, p 1732.)

HENDEY

ASSISTANT STABILIZES
PELVIS IN PLACE OF
BOARD AND STRAP IF
THESE ARE NOT AVAILABLE

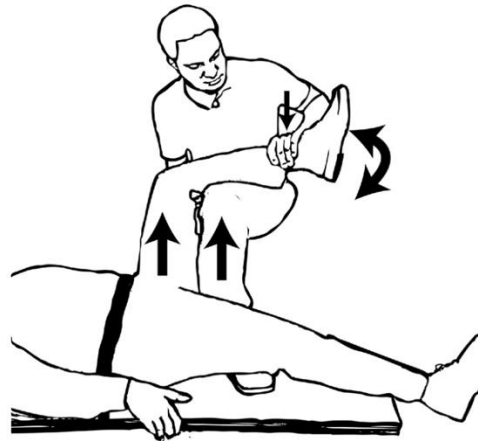


Figure 1. The patient is placed supine on a gurney, and the pelvis is fixed to a backboard with a strap. The patient's hip and knee are flexed to 90 degrees. The physician places one foot on the board, with a knee behind the patient's knee. The physician holds the patient's knee in flexion by holding the ankle down and applies an upward force to the hip by lifting with his or her calf and then gently rotates lower leg. Captain Morgan reproduced with permission from Diageo PLC.

FUN STUFF IN SPORTS MED!!



HIP DISLOCATION



Activate EMS



**Attempt
reduction**



**Transport for
further
imaging and
additional
reduction
attempts if
needed**



**Early weight
bearing does
not increase
the risk of
AVN**

May be delayed for
fractures



**RTP is
variable, but
may take 4-6
months**

SUMMARY -
APPROACH TO
THE ATHLETE
WITH AN ACUTE
DISLOCATION

Quickly assess neurovascular status and for other injuries

Activate EMS for hip/knee/ankle or open injuries

Make an attempt at reduction

Splint and protect

SUMMARY

- Many dislocations can be reduced quickly with minimal force
- Judicious use of force, including gentle traction, is unlikely to cause additional complications
- Remember anatomy when attempting a reduction!
- This stuff is fun!!

THANK YOU

