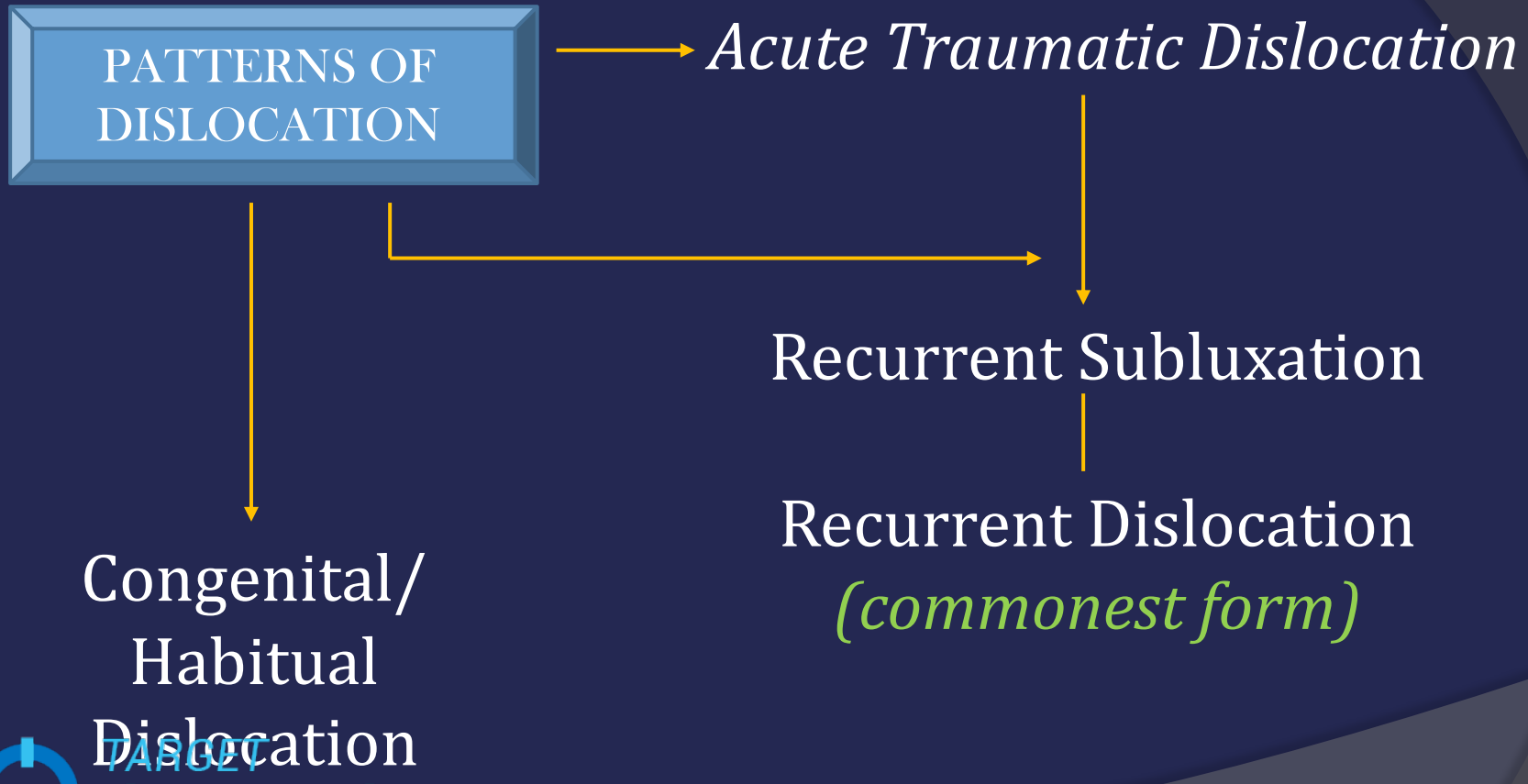
RECURRENT DISLOCATION OF PATELLA

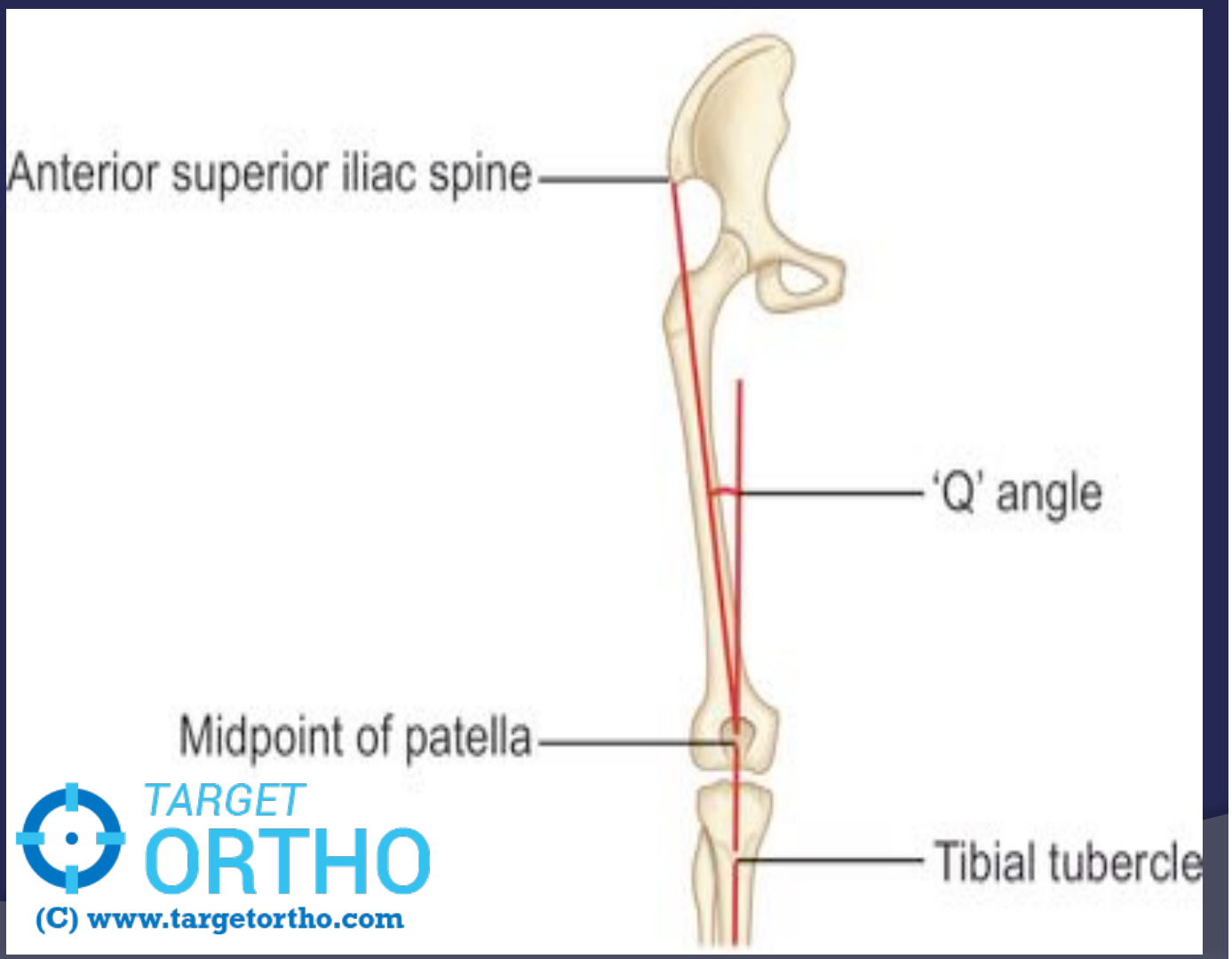
Q. A 17 years female has come with history of 3 episodes of patellar dislocation. TT-TG ratio is 19. CT shows Trochlear dysplasia depicting a shallow trochlea. Treatment?

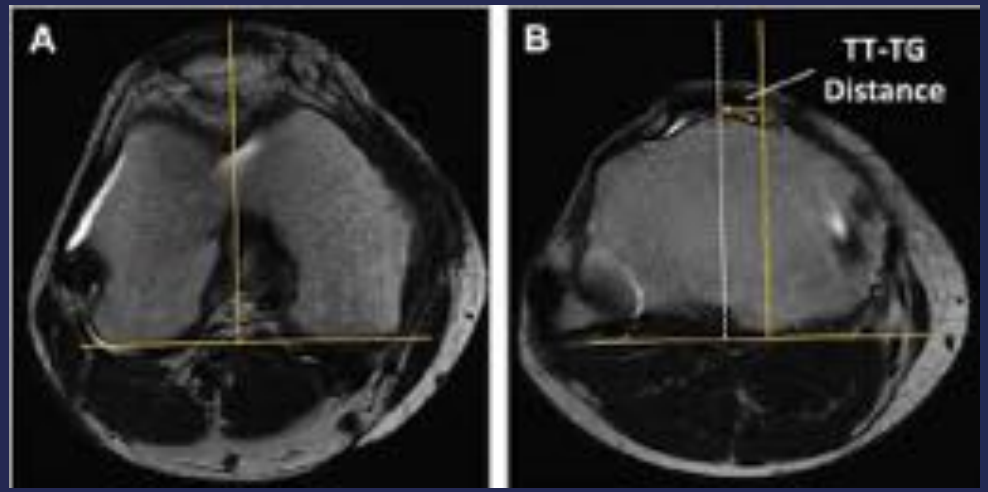
A. VMO strengthening
B. Proximal realignment
C. Distal realignment
D. Trochleaoplasty & proximal realignment



PATELLAR TRACKING

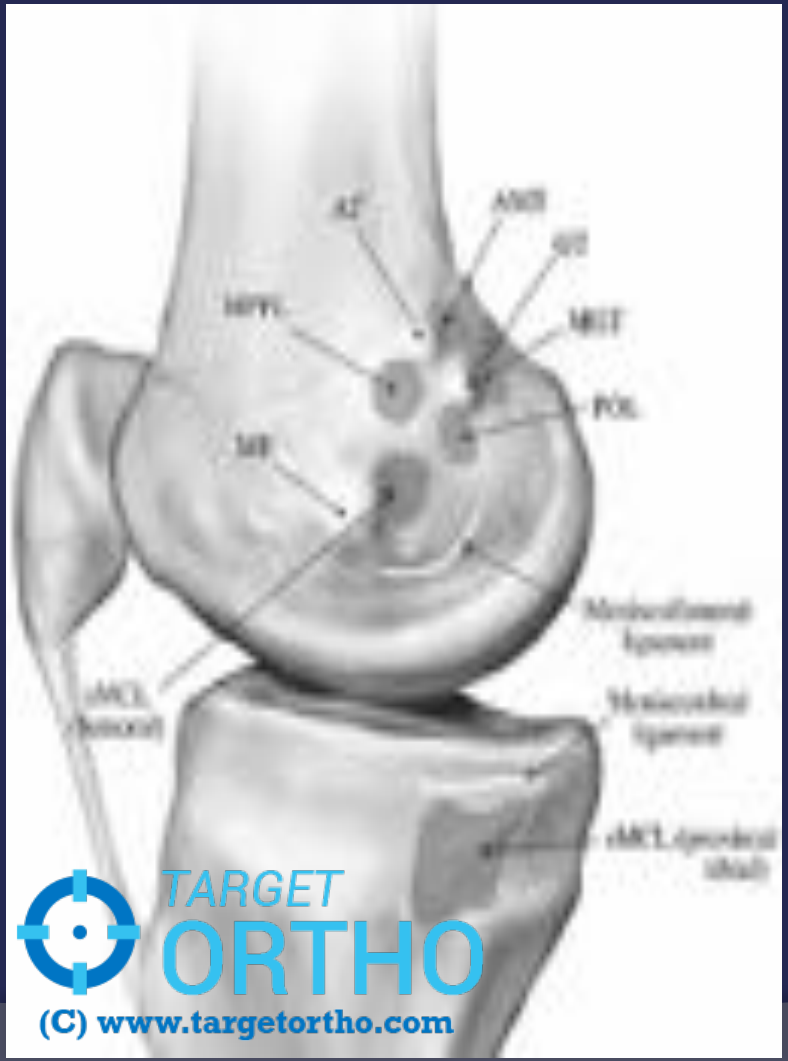
- Least contact:
- Best centered:





PATELLAR STABILIZERS

ANATOMY



MPFL runs through which layer?

Warren-Marshall

A. I
B. II
C. III
D. Between I and II

PATELLAR STABILIZERS

SUMMARY

TROCHLEAR GROOVE

DYNAMIC

VMO

STATIC

MEDIAL PATELLO FEMORAL LIGAMENT *(MPFL)*

Factors predisposing to Dislocation

Problem in soft tissue restraint	Increased lateral force vector	Problem in bony restraint
MPFL torn	High Q angle	Trochlear dysplasia
VMO atrophy	• *Genu valgum* • *External tibial torsion* • *Increased femoral anteversion*	Patella alta
Tight IT Band		

Q. Best indicator for patellar height:

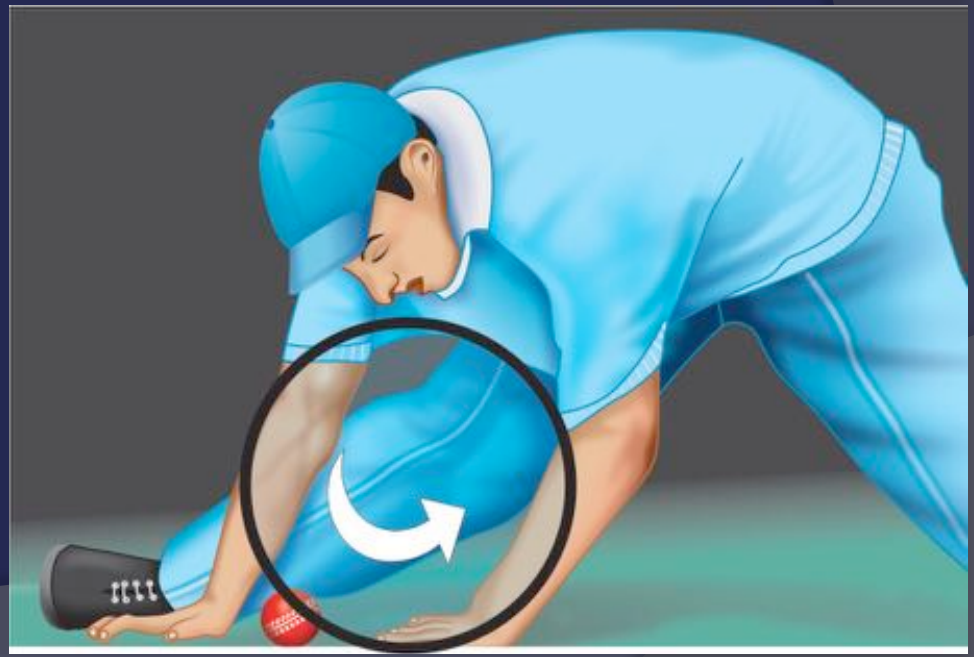
A. Blumensaat line
B. Insall-Salvati ratio
C. Blackburn Peel ratio
D. Caton Deschamps ratio

Q. Not a component of miserable mal-alignment syndrome?

A. Increased femoral anteversion
B. Genu valgum
C. Patella alta
D. External tibial torsion

HISTORY

- Mechanism of trauma
- Swelling post injury
  ?? Hemarthrosis
- Hyperlaxity of joints



CLINICAL EVALUATION

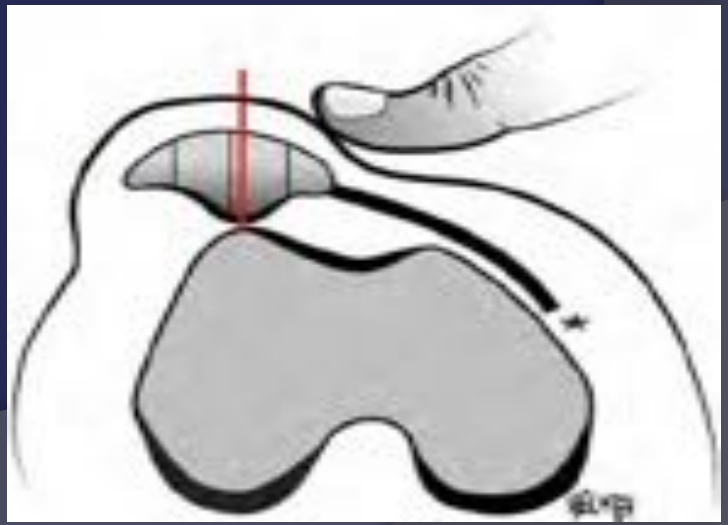
Tenderness over course of MPFL

Patellar apprehension test

Patellar glide test

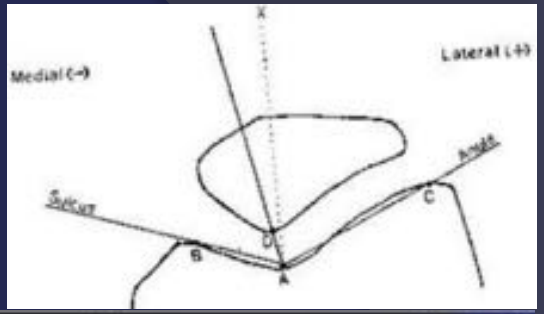
Patellar tilt test

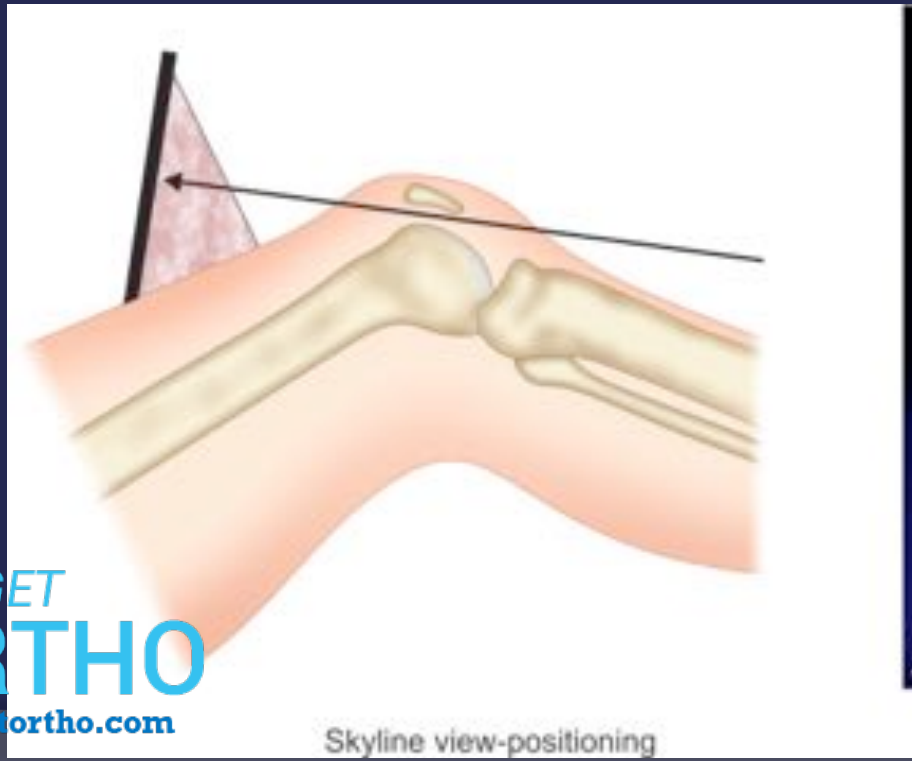
“J” sign



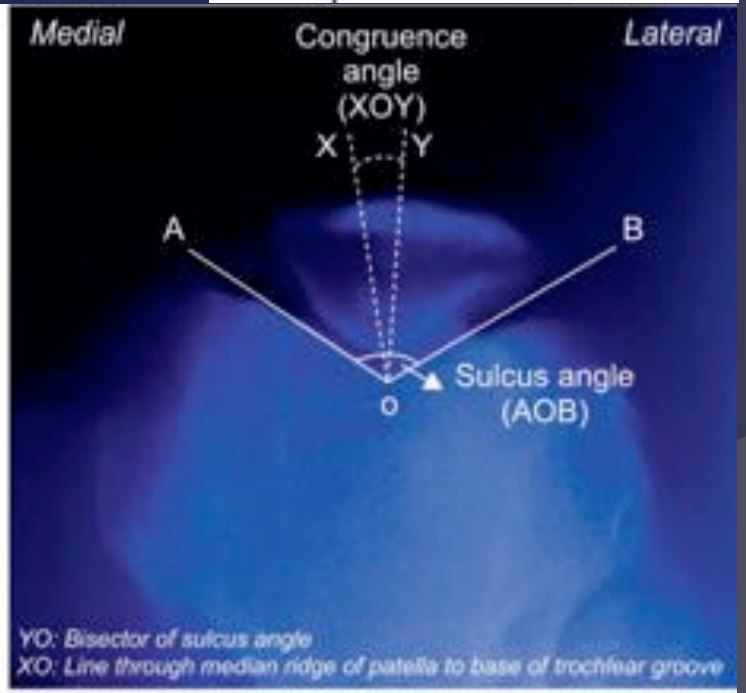
X ray: Views

MERCHANT VIEW





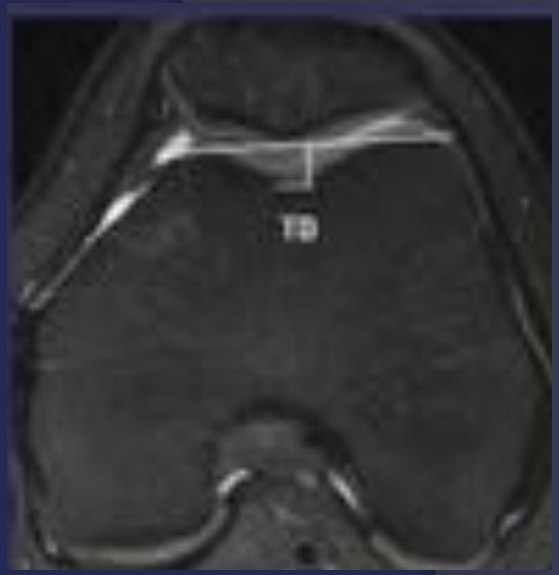
Skyline view-positioning



Skyline view of normal patella

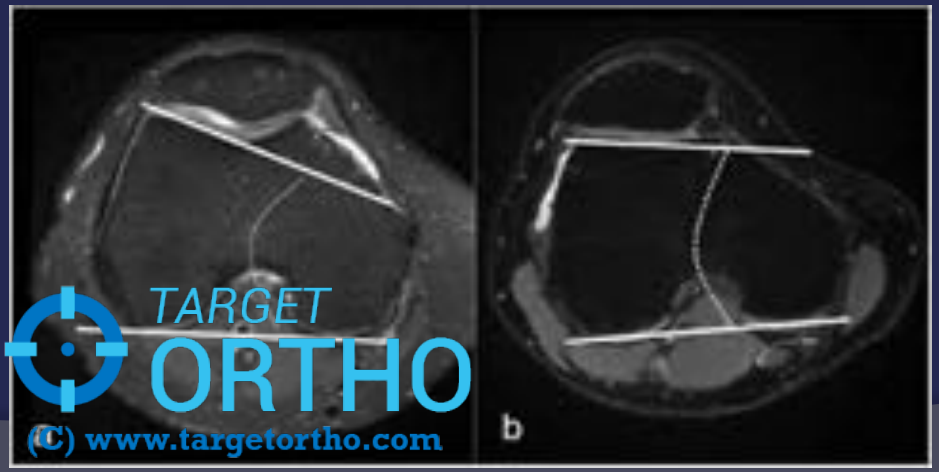
CT: *Trochlear dysplasia*

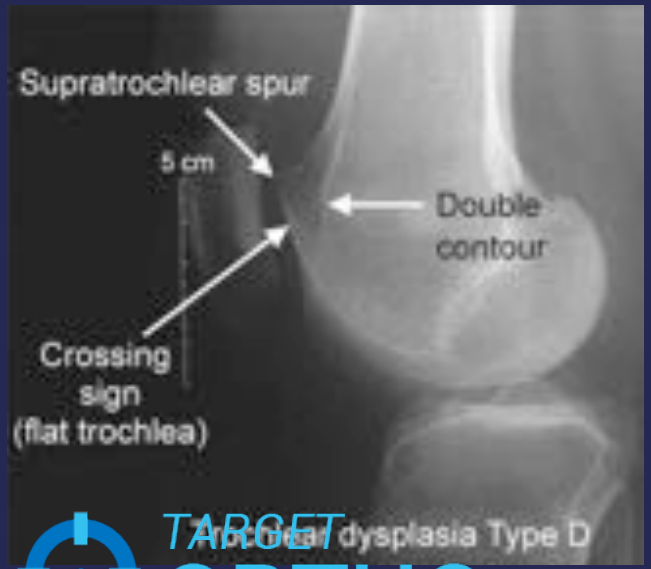
- Trochlear depth
- Lateral trochlear inclination

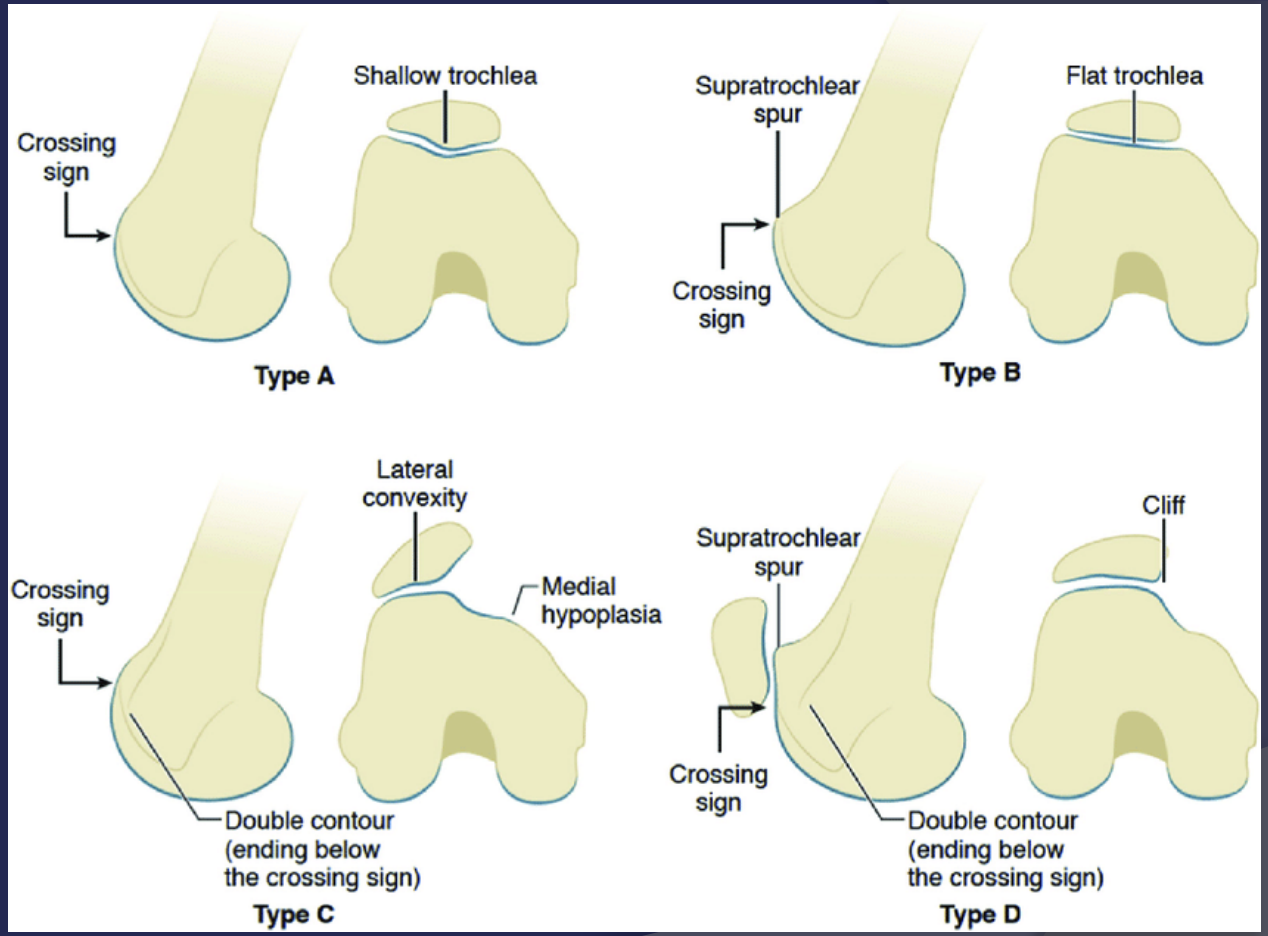


3 cm above joint line

Superior most axial section showing cartilage







CLASSIFICATION OF TROCHLEAR DYSPLASIA

MRI >> CT Scan

- Integrity of MPFL
- TT-TG ratio
- Trochlear dysplasia

MANAGEMENT

ACUTE DISLOCATION EPISODE

CR; *if not reduced*!

Knee immobilized in EXTENSION for 3 weeks

Patient preferably kept non weight bearing x 3 weeks

VMO strengthening

SURGERY

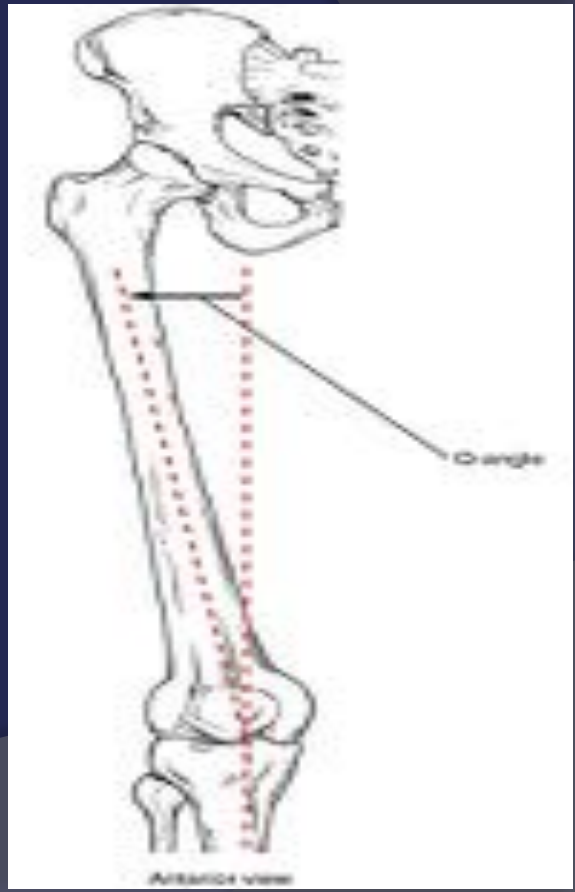
Despite CR attempt Merchant view shows *Subluxated patella*

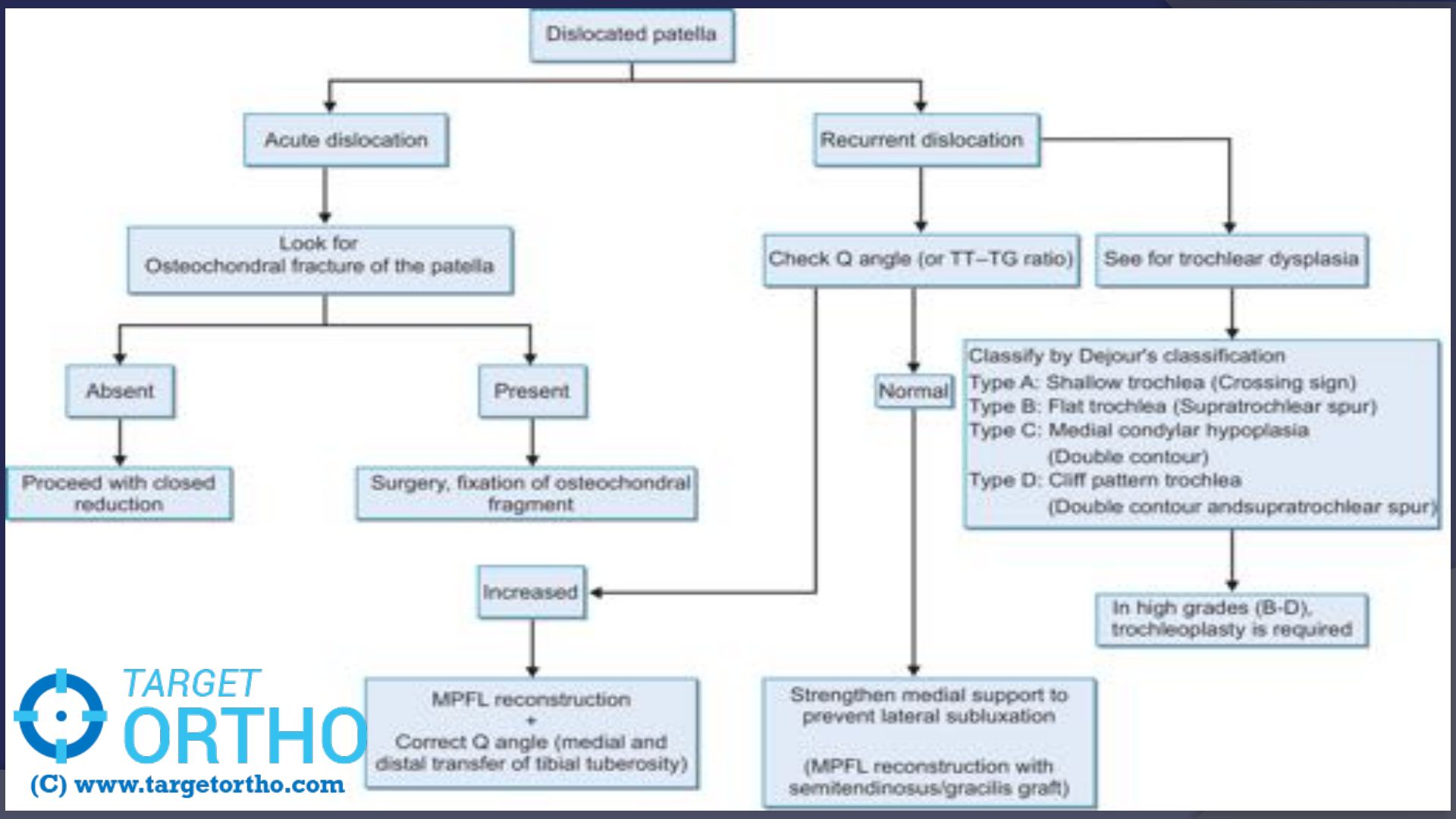
Concomitant osteochondral fragment on Merchant view

MANAGEMENT

RECURRENT DISLOCATIONs

- Proximal Realignment Procedures
- Distal Realignment Procedures
- Trochleoplasty





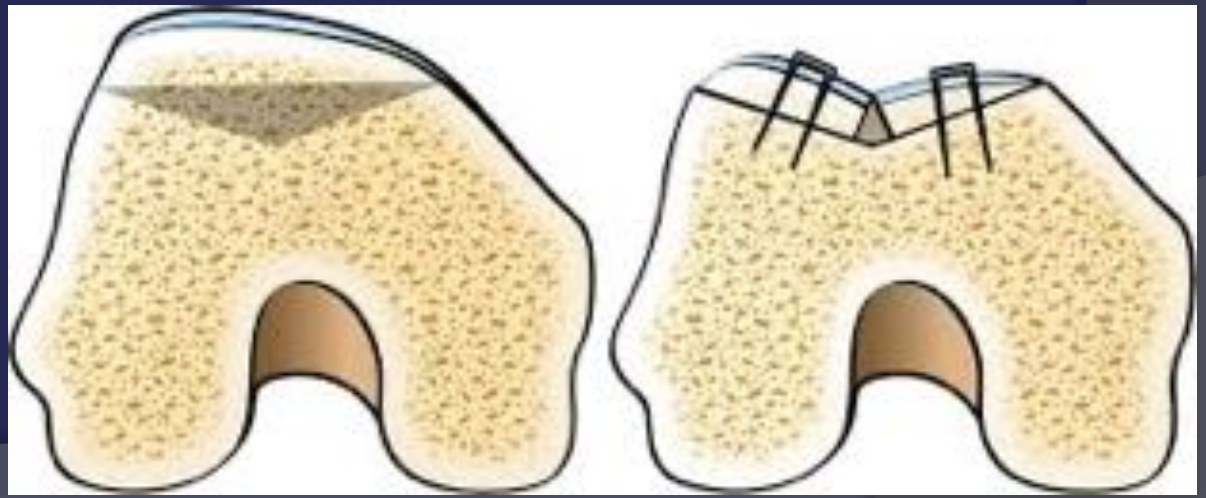
SURGICAL TECHNIQUES

TROCHLEOPLASTY

FACET ELEVATING

bEREITER

SULCUS DEEPENING



TIBIAL TUBERCLE OSTEOTOMY

ELMSLIE TRILLAT PROCEDURE

? Distal shift

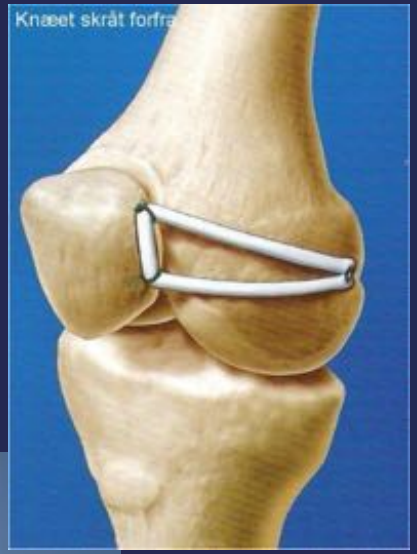
? Medial Shift

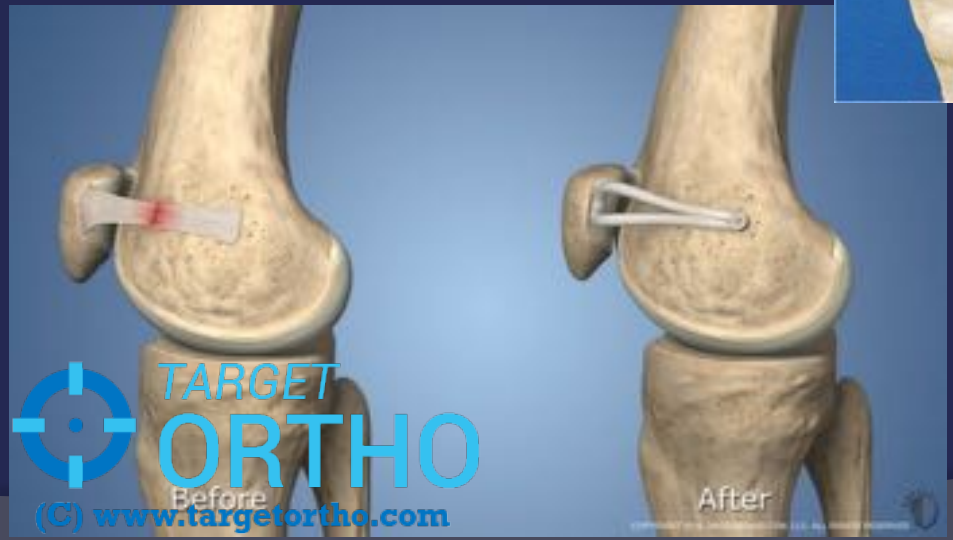
Fulkerson modification

Roux-Goldwaithe

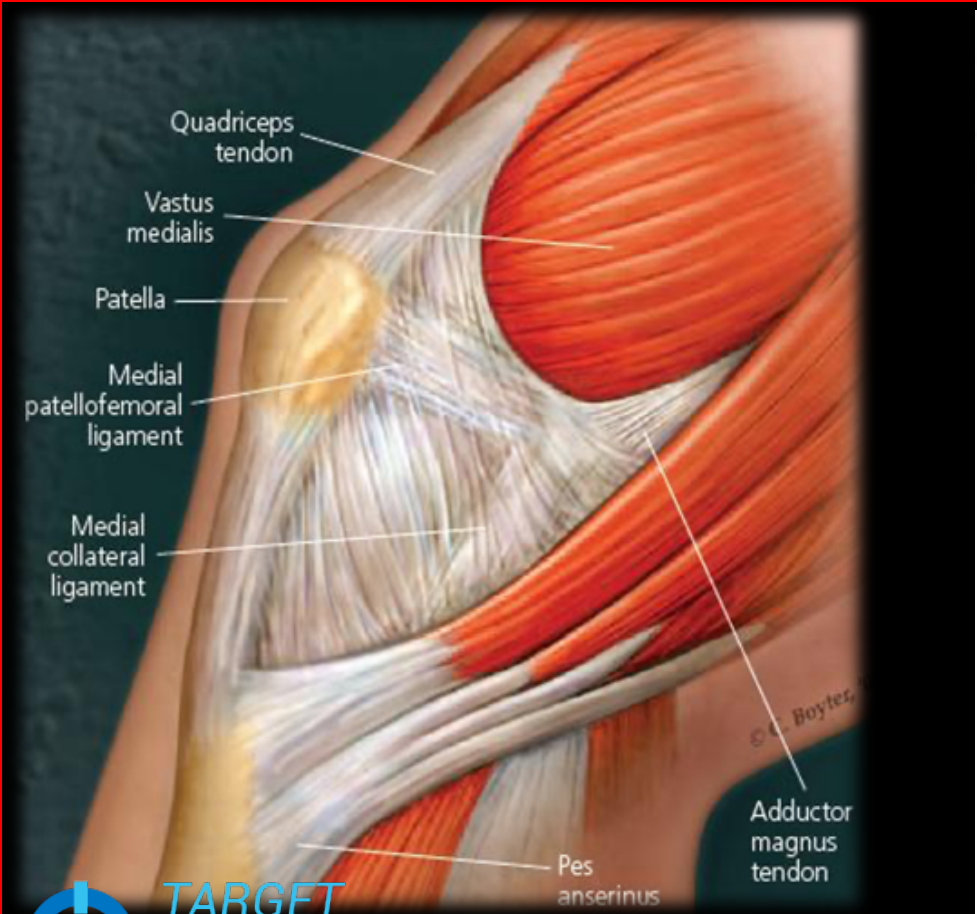
MPFL
RECONSTRUCTION

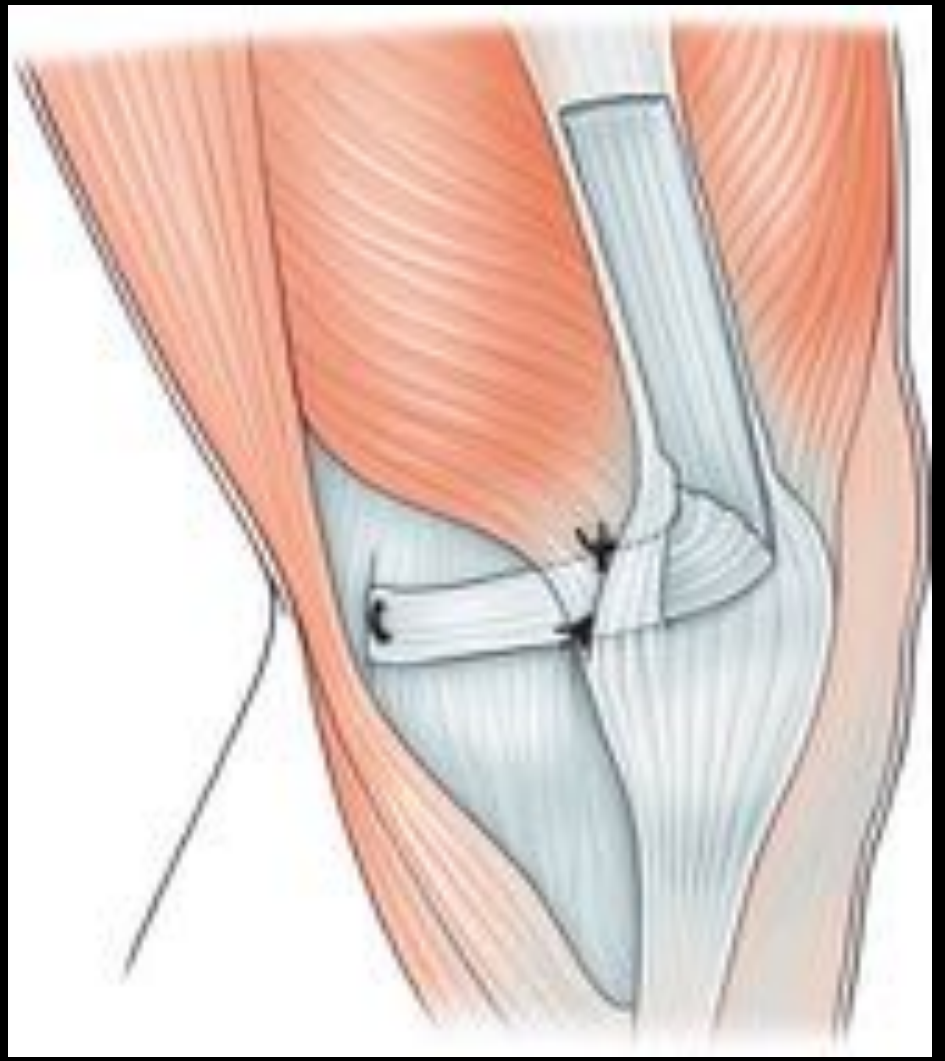
STATIC





DYNAMIC





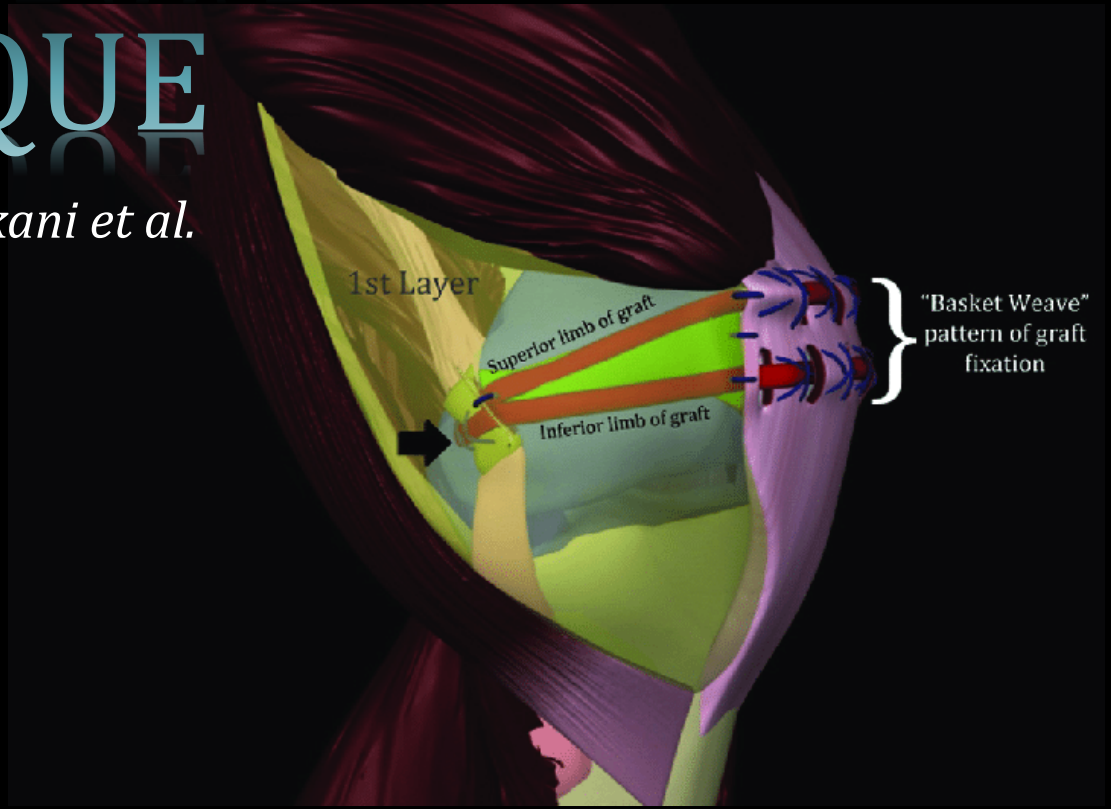
Steensen RN et al. Am J Sports Med. 2004;32:1509-1513

Q. Who has devised the Superficial Quadriceps technique?

A. Konkani et al
B. Dejour et al
C. Macquet et al
D. Goyal et al

BASKET WEAVE TECHNIQUE

Konkani et al.



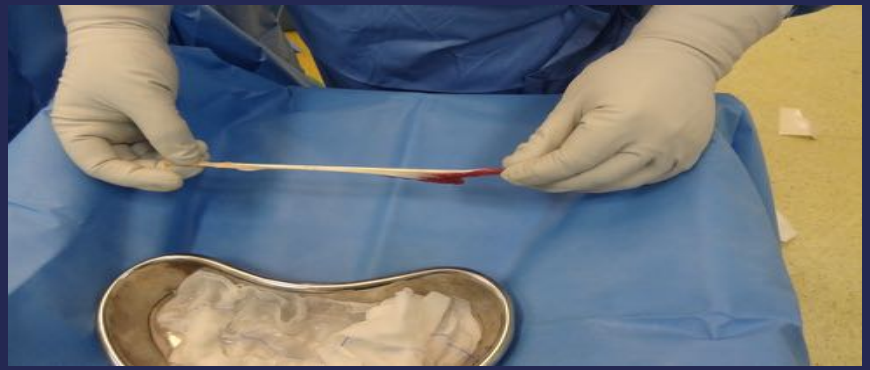
MPFL RECONSTRUCTION

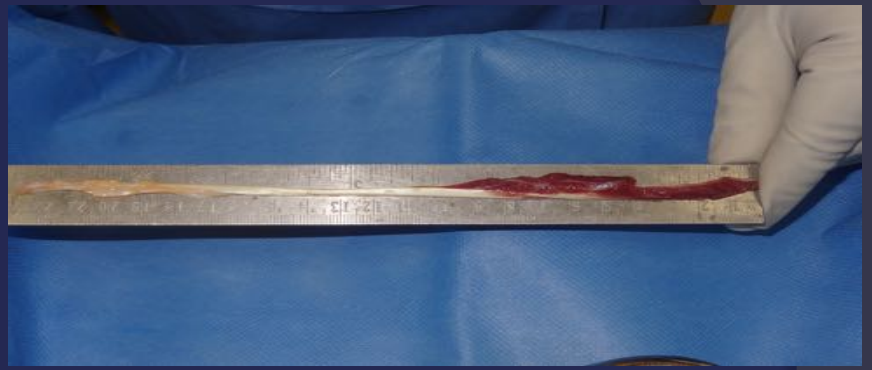
GRAFT HARVESTING

I/L gracilis preferred

More familiarity
Easier to harvest
Near to reconstruction site

Graft Preparation and Sizing





PATELLAR PREPARATION AND FIXATION

FEMORAL PREPARATION AND FIXATION

Marking femoral attachment

Very important step

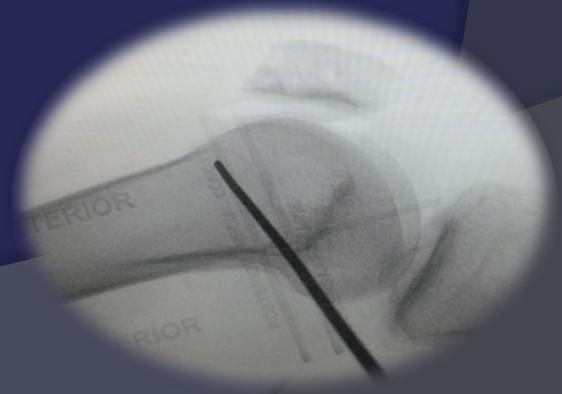
TIPS

POINT OF ATTACHMENT: MPFL is attached on the ridge between adductor tubercle and medial femoral epicondyle!

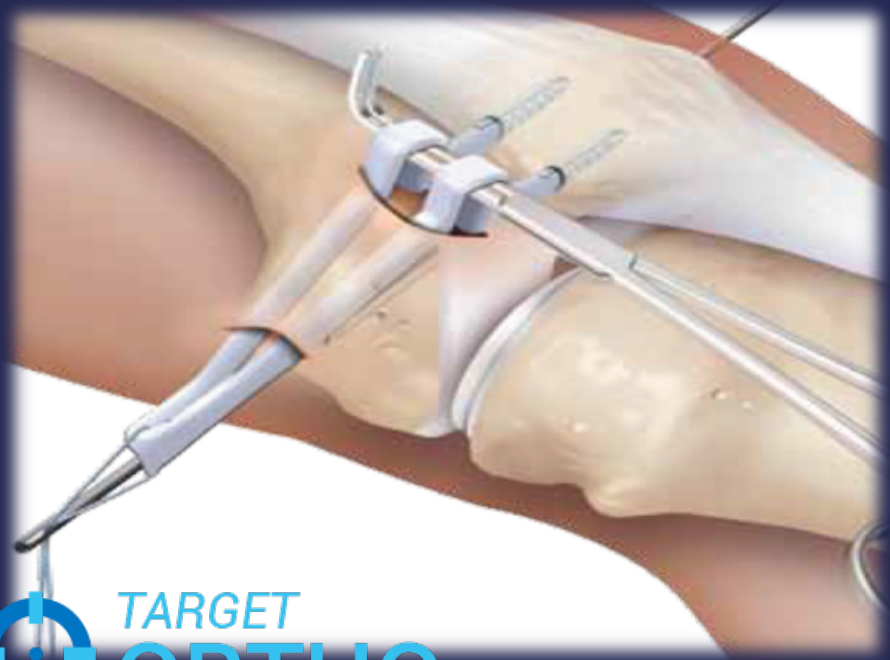
TOO PROXIMAL FEMORAL FIXATION: Medial patellar femoral facet becomes overloaded with increasing FLEXION.

TOO DISTAL FEMORAL FIXATION: MPFL becomes inappropriately tight in EXTENSION.

Graft is fixed with knee in 30-45° of flexion!



GRAFT PASSAGE



Graft passed through a Soft Tissue Tunnel between Medial Retinaculum and Joint Capsule.

(MPFL is located in second layer of Warren and Marshall)

Assessing graft tightness

Lateral patellar translation is checked as the forceps are used to stabilize the MPFL. It should tighten only on lateral patellar translation.

There should be good end point to lateral patellar translation in full extension and in 30° knee flexion.

Q. A 26 years male had knee trauma that led to ACL tear and patellar dislocation that became recurrent. In first sitting, ACL was reconstructed, using hamstrings and an osteochondral fragment was found that was removed. However, MPFL reconstruction is due. Which will be best method for this patient?

A. Reconstruct using C/L Hamstrings

B. Superficial quadriceps technique

C. Basket weave technique

D. All techniques have similar results

CAUTIONS

ALWAYS PERFORM A PRIOR DIAGNOSTIC ARTHROSCOPY

There is high prevalence of medial articular lesions after dislocation → reconsider the design of the procedure if needed.

(MPFL reconstruction can add load to the medial articular lesion)

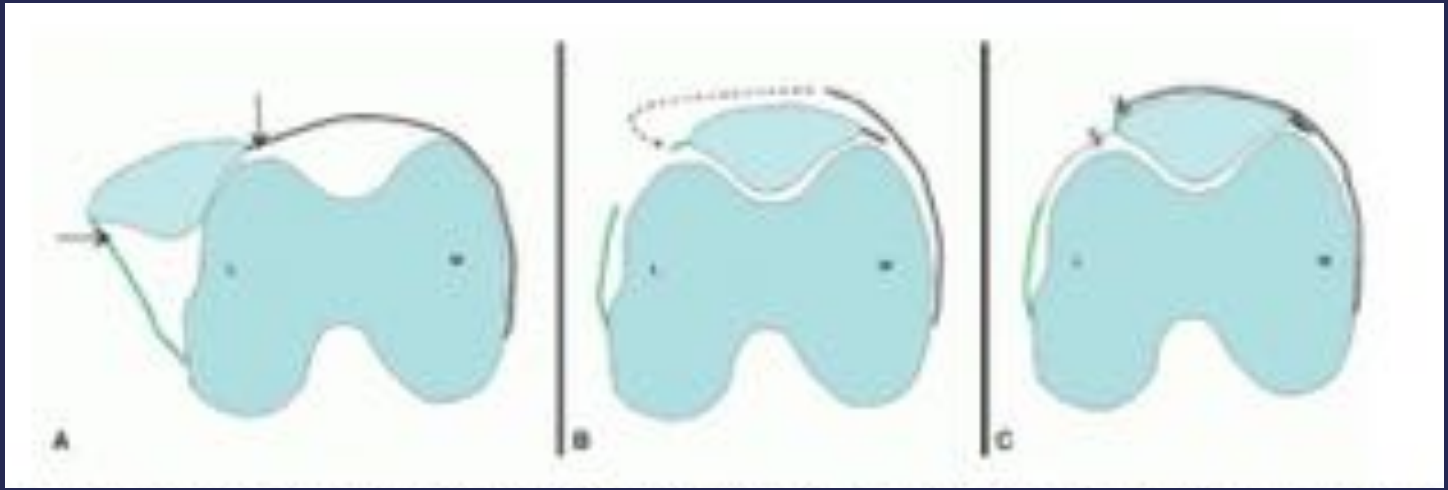
Alternative

Soft tissue fixation technique into vastus medialis

HABITUAL DISLOCATION OF PATELLA

Predisposing factors include

- ligamentous laxity
- contracture of the lateral patellar soft tissues
- patella alta
- quadriceps contractures
- hypoplasia of the lateral femoral condyle and genu valgum (bony factors)



4 in 1

I. Quadriceps lengthening

II. Lateral release, proximal tube realignment of the **patella** and

III. Semitendinosus tenodesis (MPFL recon.)

IV. Transfer of the **patella** tendon/ Osteotomy

THANK YOU

TARGET ORTHO