8th Advanced Course on Knee Surgery

Indications and limits of meniscal preservation

Technique of repair In-Out

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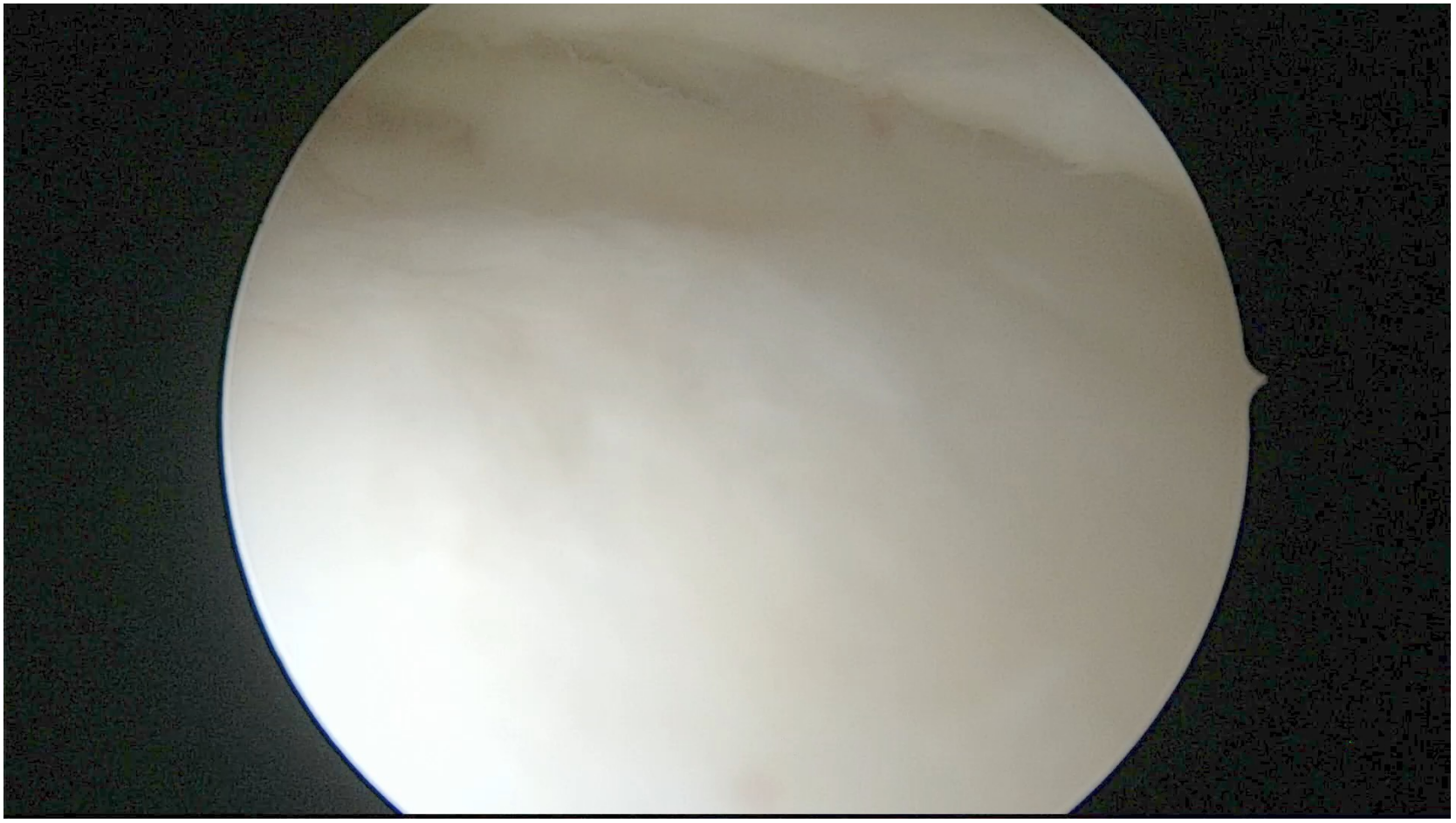
Set-up

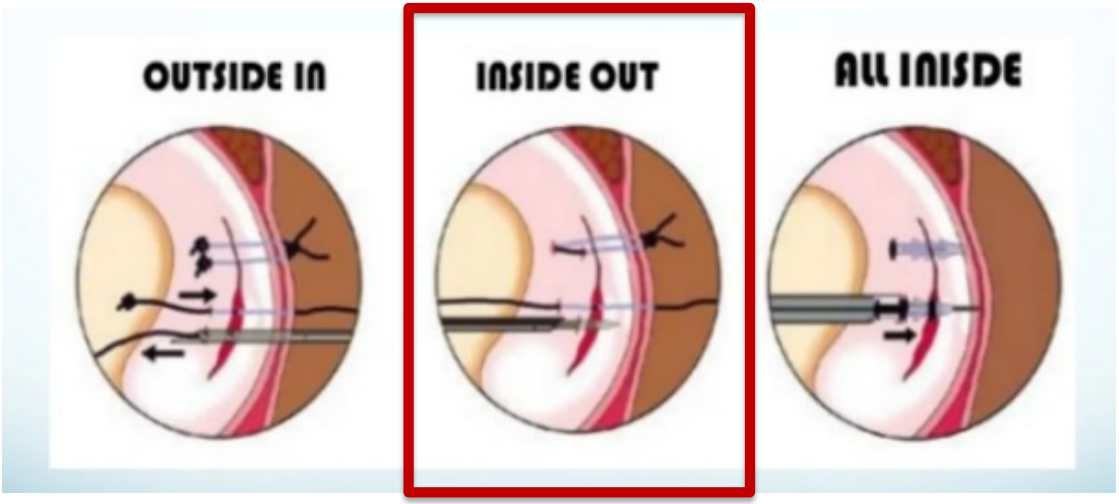
Set-up

Portals

Diagnostic evaluation



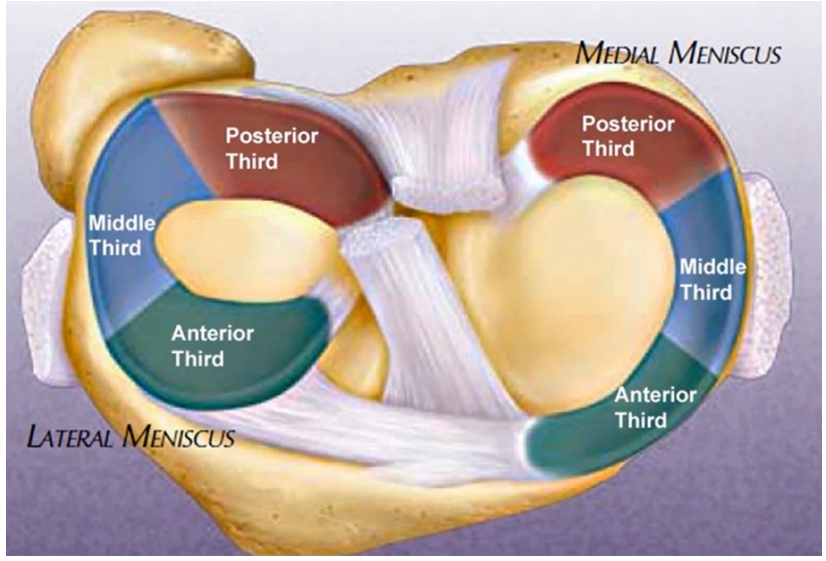
Decision



Indication for IN OUT suture

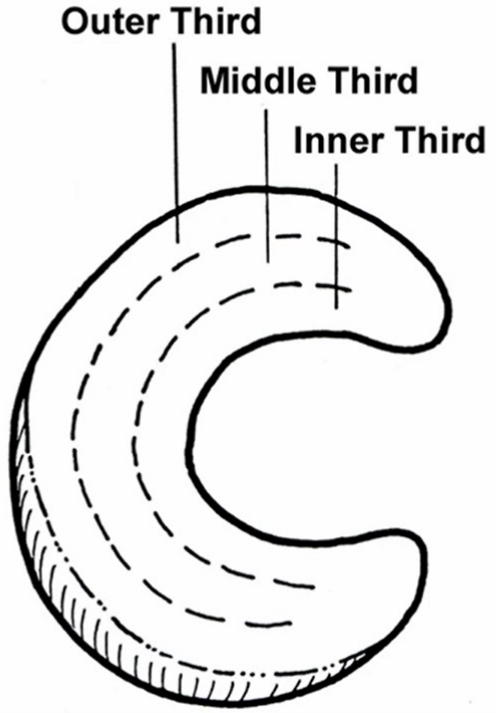
Tear location

Middle and posterior third of the MM or LM



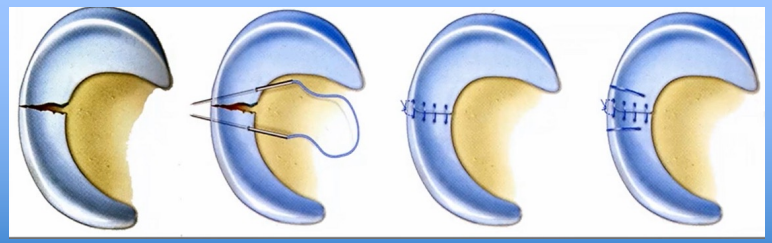
Inside-out sutures	Posterior horn tears, mid-third tears, displaced bucket-handle tears, peripheral capsular tears, meniscal allografts

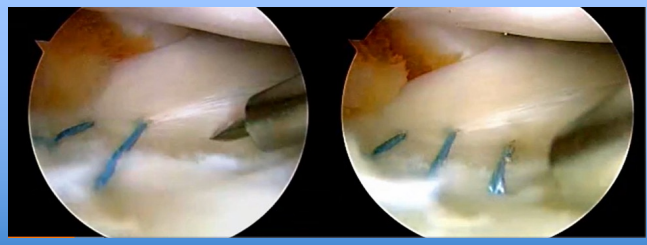
- Outer third
- Middle third
- Inner third



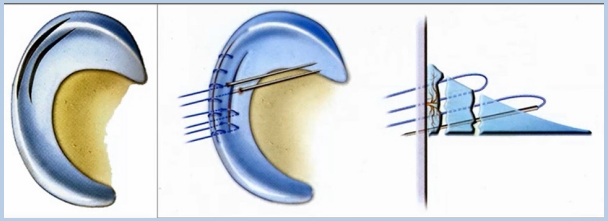
Indication for IN OUT suture
Type of tear

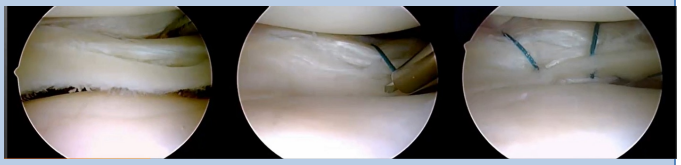
- Radial tears (LM)



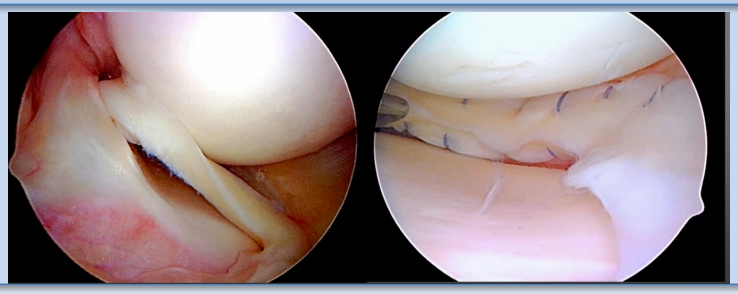


- Double longitudinal tears

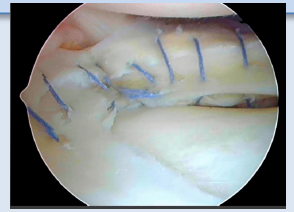




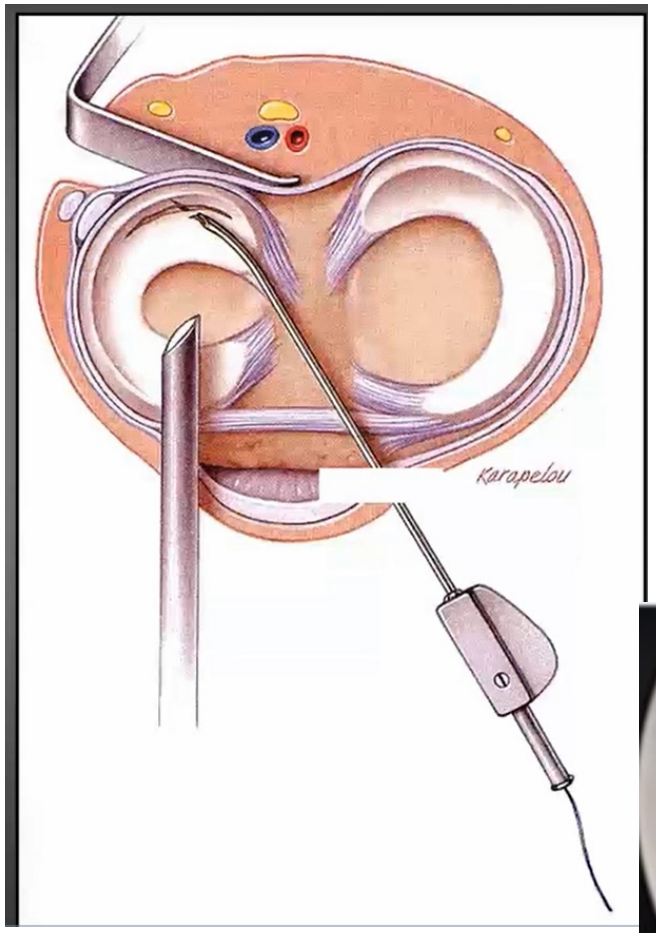
- Tears which requires more than 4-5 sutures (long longitudinal and bucket handle)



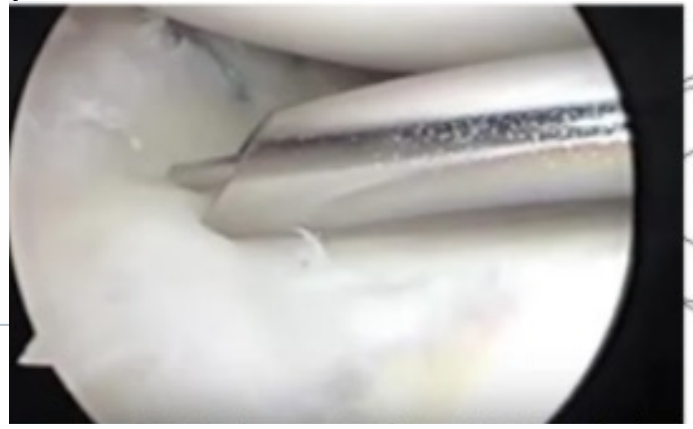
- Complex tear patterns

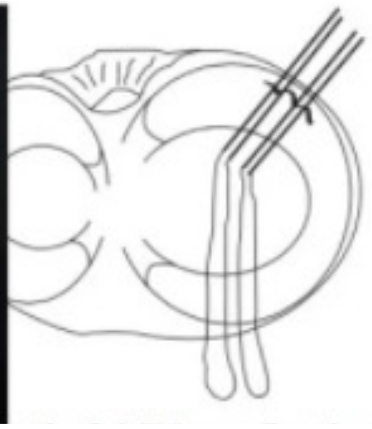


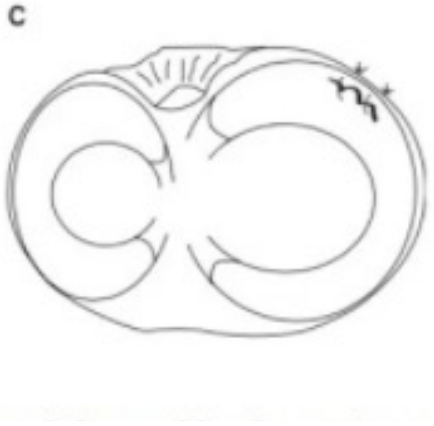
In-Out Technique



Suture are passed through a metal cannula from inside the knee joint across the meniscus tear exiting the joint through a posterior incision

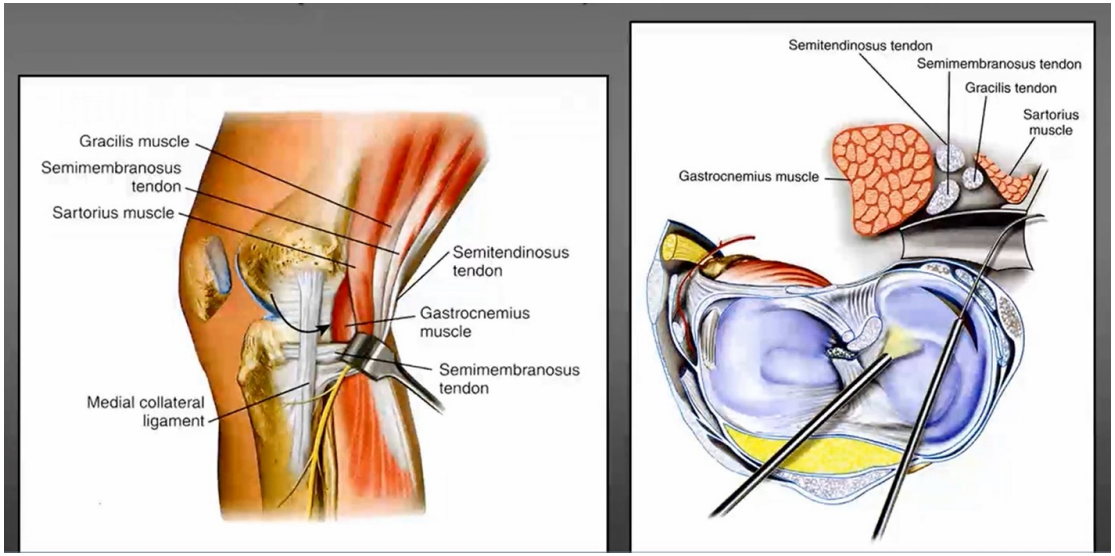




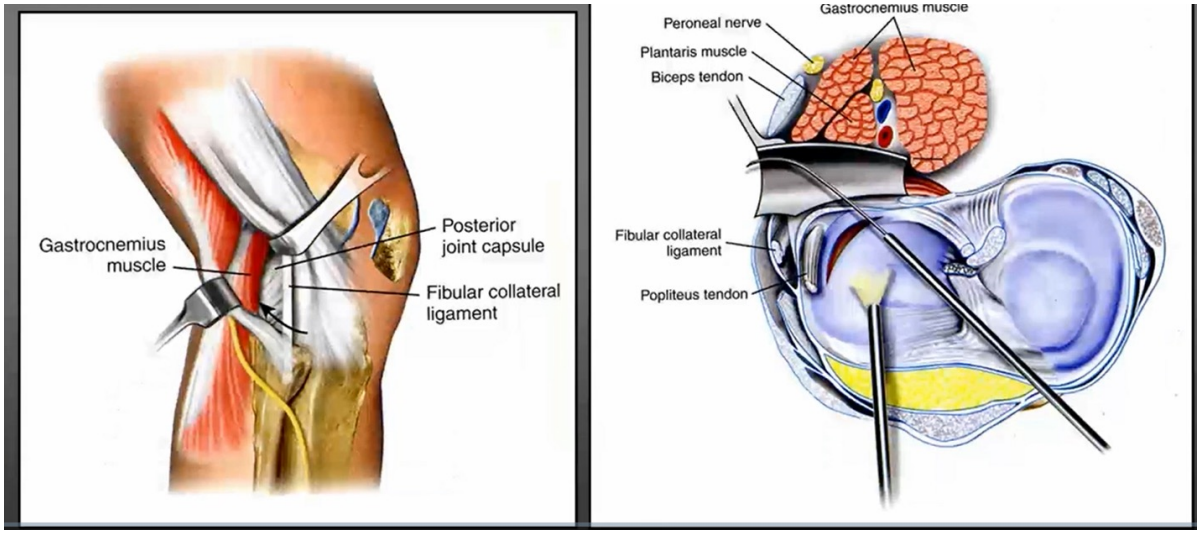


Features of the In-Out Technique

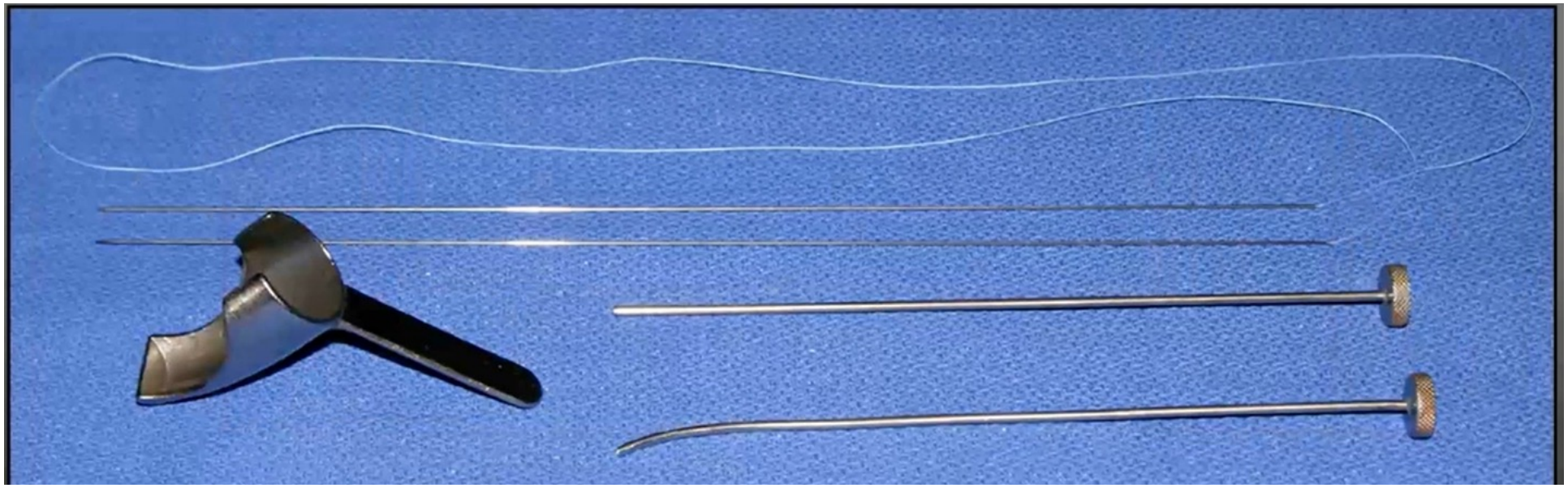
- Posteromedial surgical approach and popliteal retractor to protect the saphenous nerve and vein



- Posterolateral surgical approach and popliteal retractor to protect the peroneal nerve and N-V bundle



Instrumentation



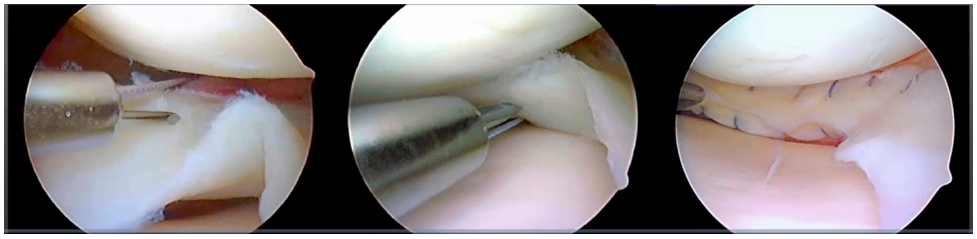
- Henning popliteal retractor (Stryker)
- Malleable metal cannulas for suture placement
- 2-0 non-absorbable suture with long needles

Advantages and disadvantages

Advantage:	Disadvantage:
Highest mechanical strength	➢ Neurovascular injury ➢ Incisions

Advantages

- Ease of access to the femoral and tibial surfaces of the meniscus
- Ability to inserthorizontal and vertical mattress sutures on both surfaces of the meniscus
- Ability to repair complex tear patterns
- Sutures are cheap



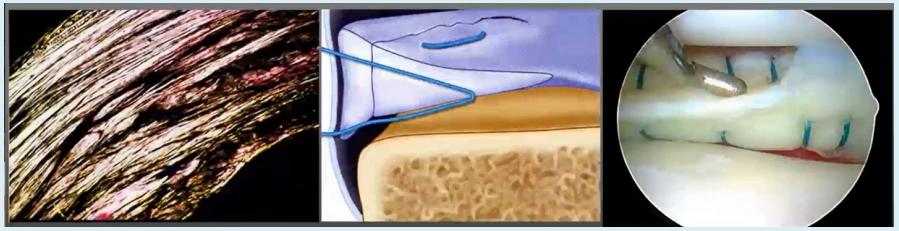
Disadvantages

- Requires of posteromedial or posterolateral safety incision to protect the NV structures
- Requires a trained assistent

Stabilization of the Tear Site

Suture orientation

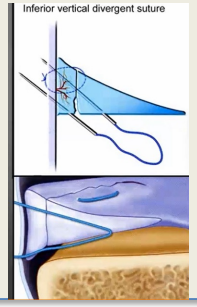
Due to the circumferential orientation of the meniscal collagen fibers vertical mattress sutures provide the best fixation strenght

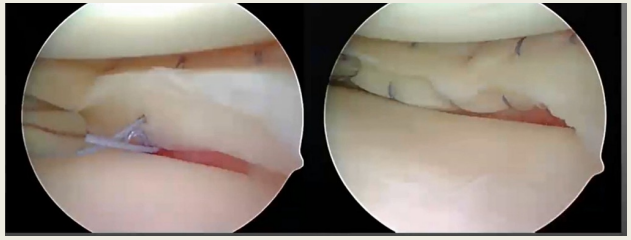


Suture placement

Suture placed only on the superior surface of the meniscus cause the meniscus to pucker and create gap formation on the tibial surface

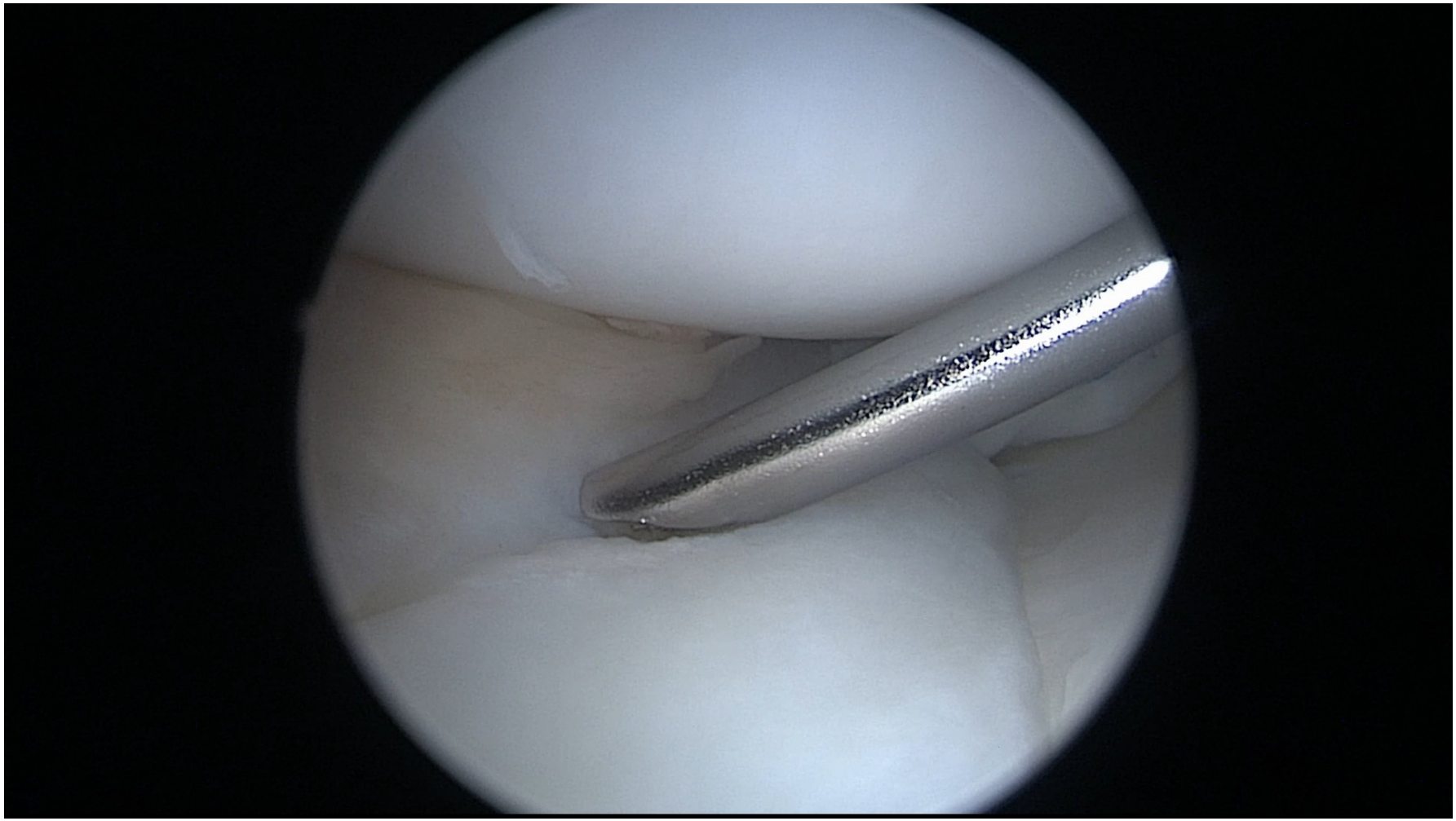
Suture must be placed on the superior and inferior surfaces of the meniscus to prevent puckering and gap formation



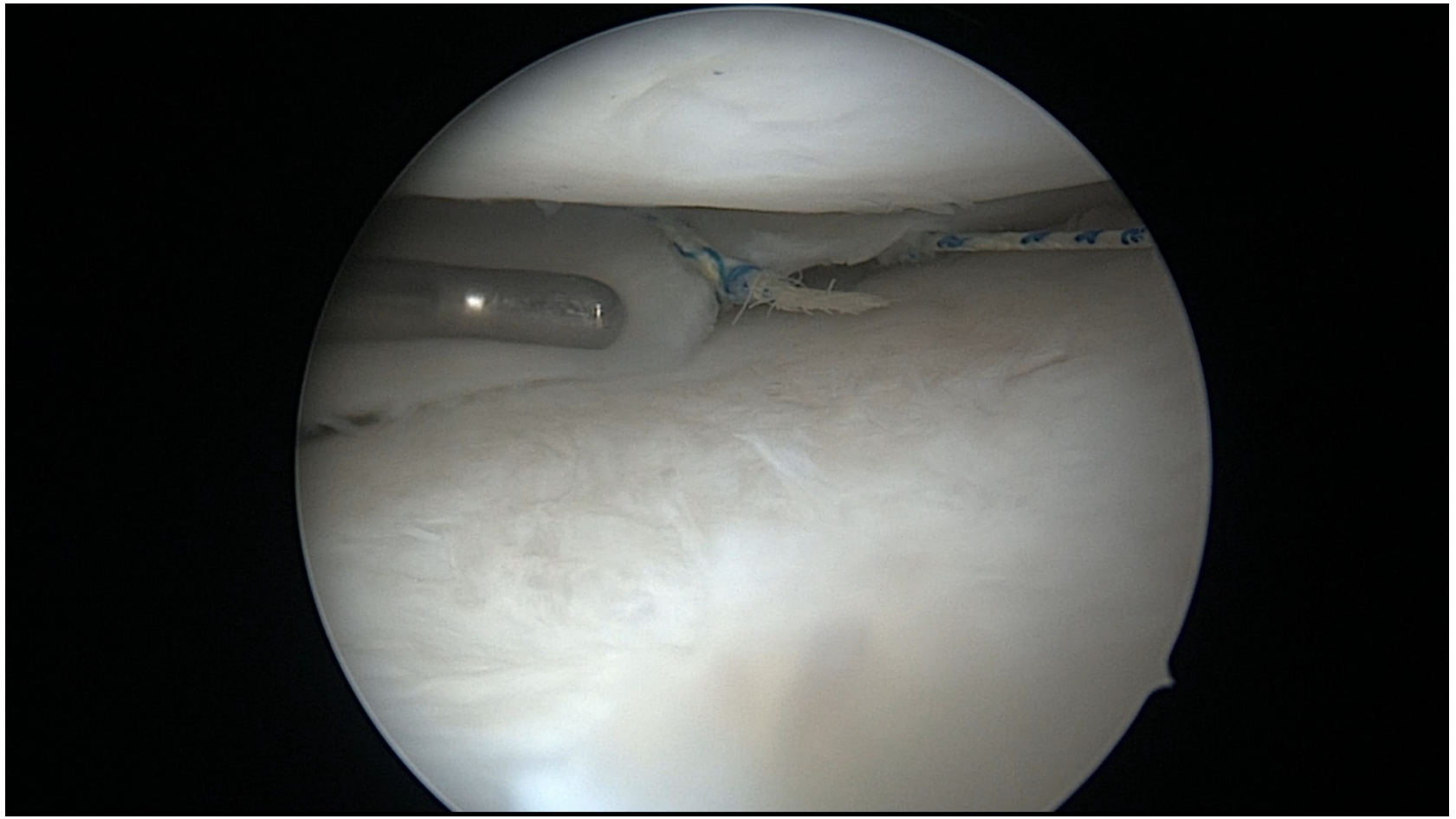


In-out: from outside

In-out: arthroscopic vision



In-out: second look



Take home message

- Do not underestimate position of the patient and portals
- Correct indications during diagnostic arthroscopy
- Consider advantages and disadvantages
- Adequate suture orientation and placement