

Doron Sher

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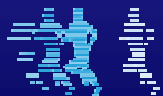
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Chondral Injuries and High Tibial Osteotomy

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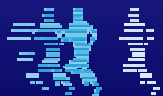
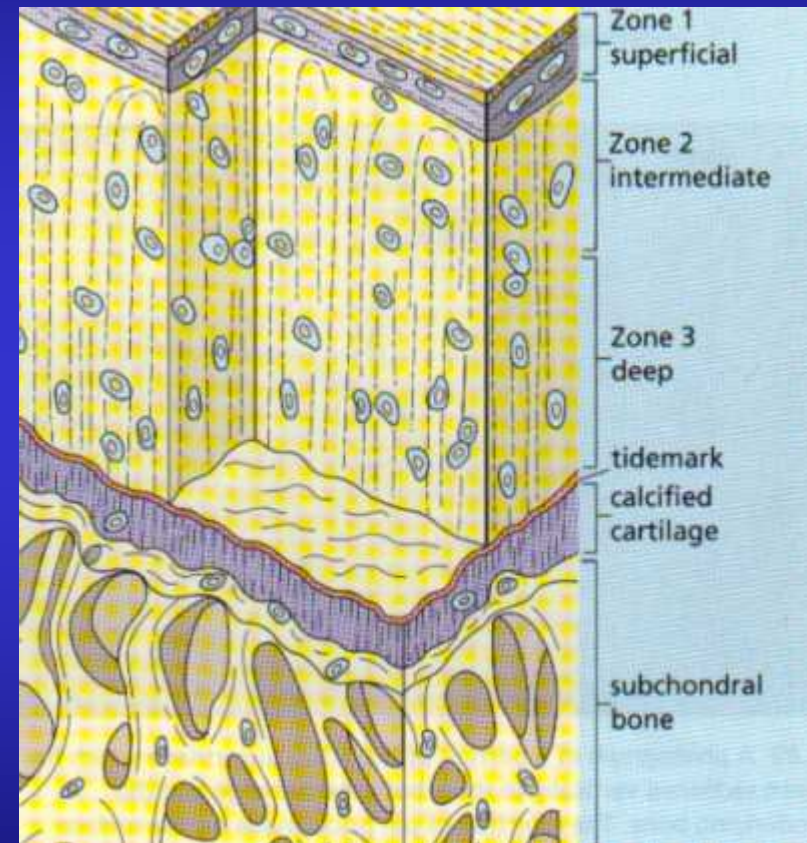
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Hyaline Cartilage

- Chondrocytes embedded in a matrix of amorphous ground substance with glycoproteins and predominantly type II collagen



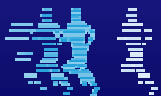
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Articular Cartilage

- Load bearing
- Shock absorber
- Smooth movement
- Prevention of articular damage is the key
- No proven method to date can reconstitute hyaline articular cartilage



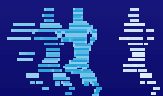
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Chondral Lesions

- Very common
- Difficult to treat
- Present to physio before and often after arthroscopy because of ongoing pain



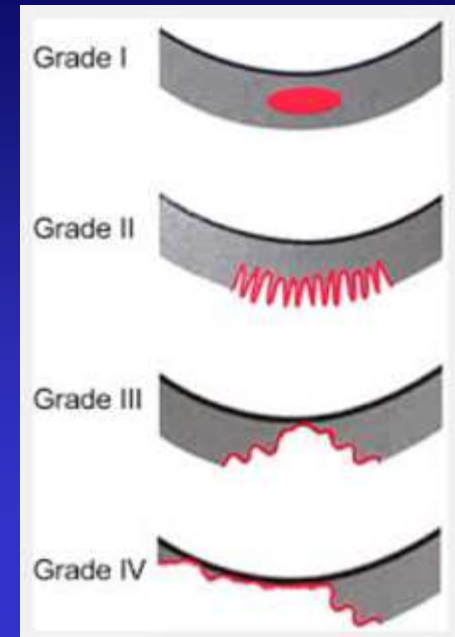
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Outerbridge Classification

- 1- softening of cartilage
- 2- fibrillation superficial
- 3- fibrillation down to subchondral bone
- 4- exposed bone



Who Gets Them?

- Anterior cruciate ligament injuries
- Direct blows
- Patella dislocation
- Gradual wear and tear damage occurs with increasing age and usually not suitable for grafting



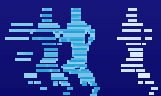
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Treatment

- Conservative
- Debridement
- Microfracture
- Mosaicplasty
- CarGel
- Osteotomy
- Arthroplasty



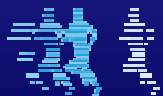
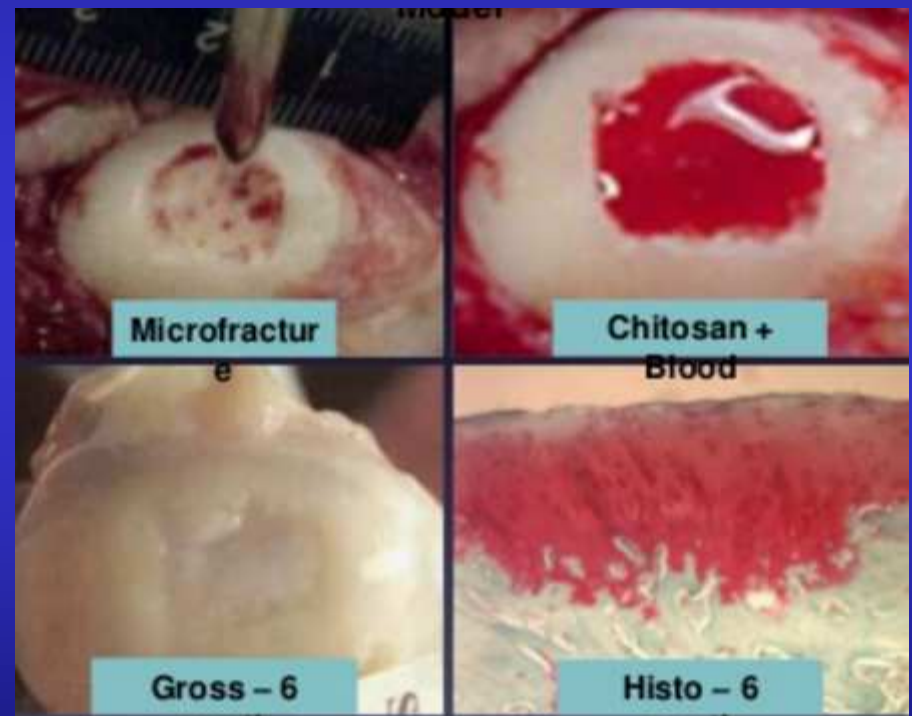
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Treatment

- Conservative
- Debridement
- Microfracture
- Mosaicplasty
- CarGel
- Osteotomy
- Arthroplasty



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Treatment

- Conventional treatments do not restore articular cartilage to its normal state
- Healing tissue is fibrocartilage which does not have the normal mechanical properties of articular cartilage

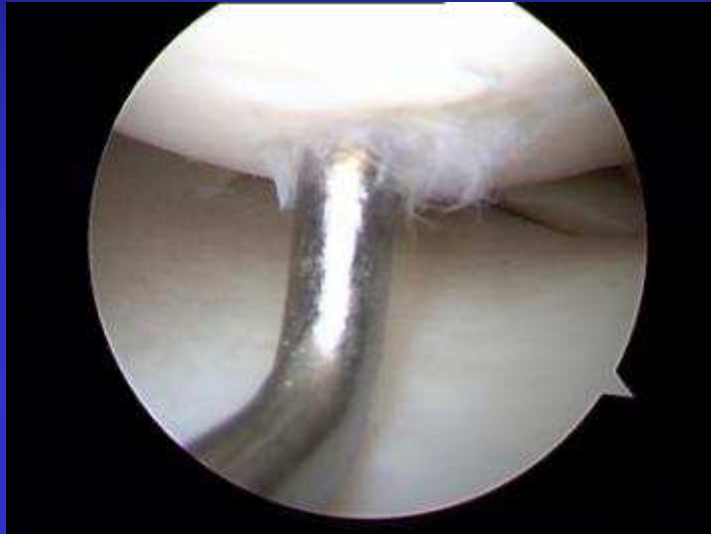


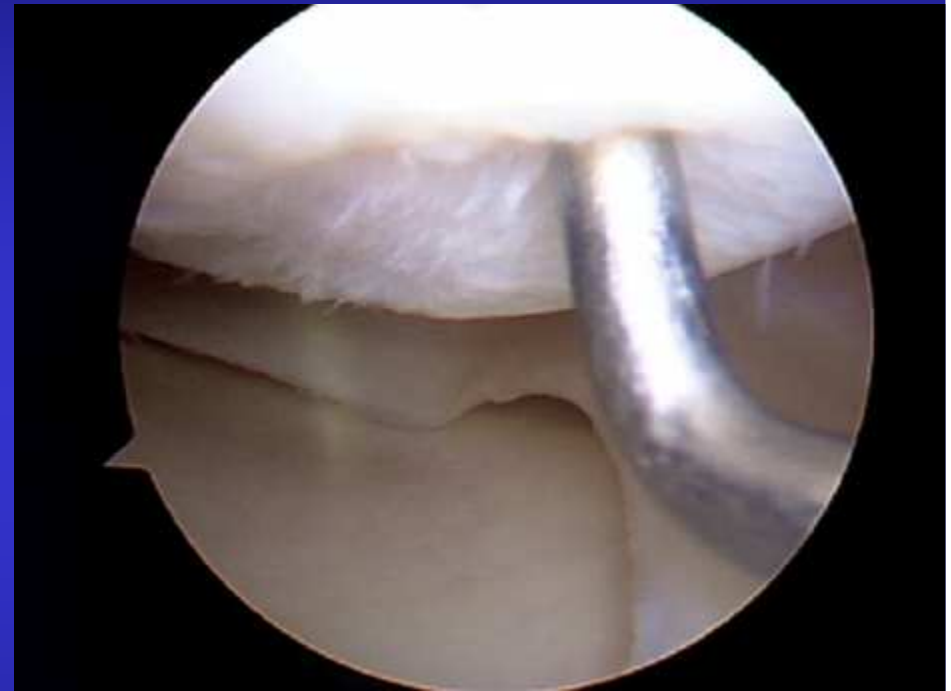
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100% PURE COLLAGEN TYPE II EXTRACT

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Debridement



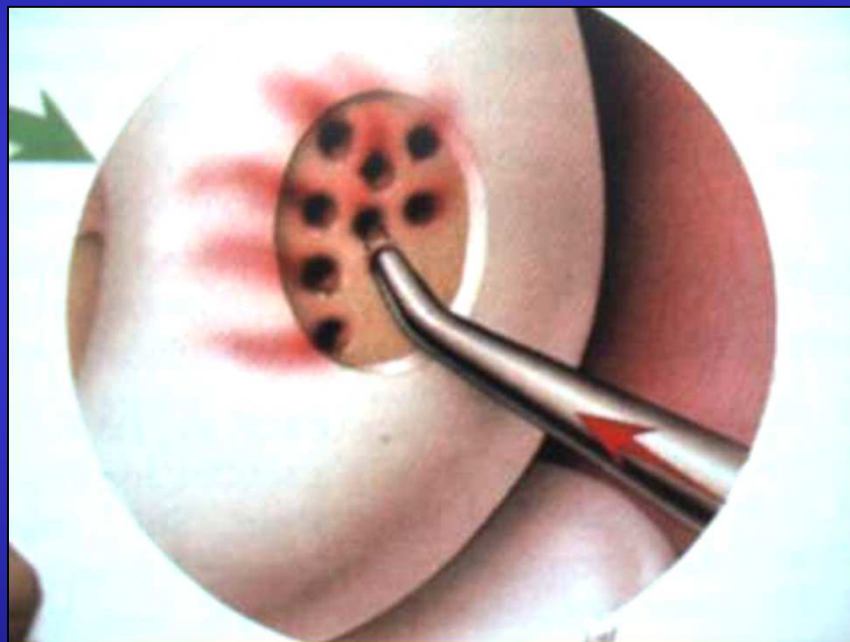


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MICROFRACTURE



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Microfracture

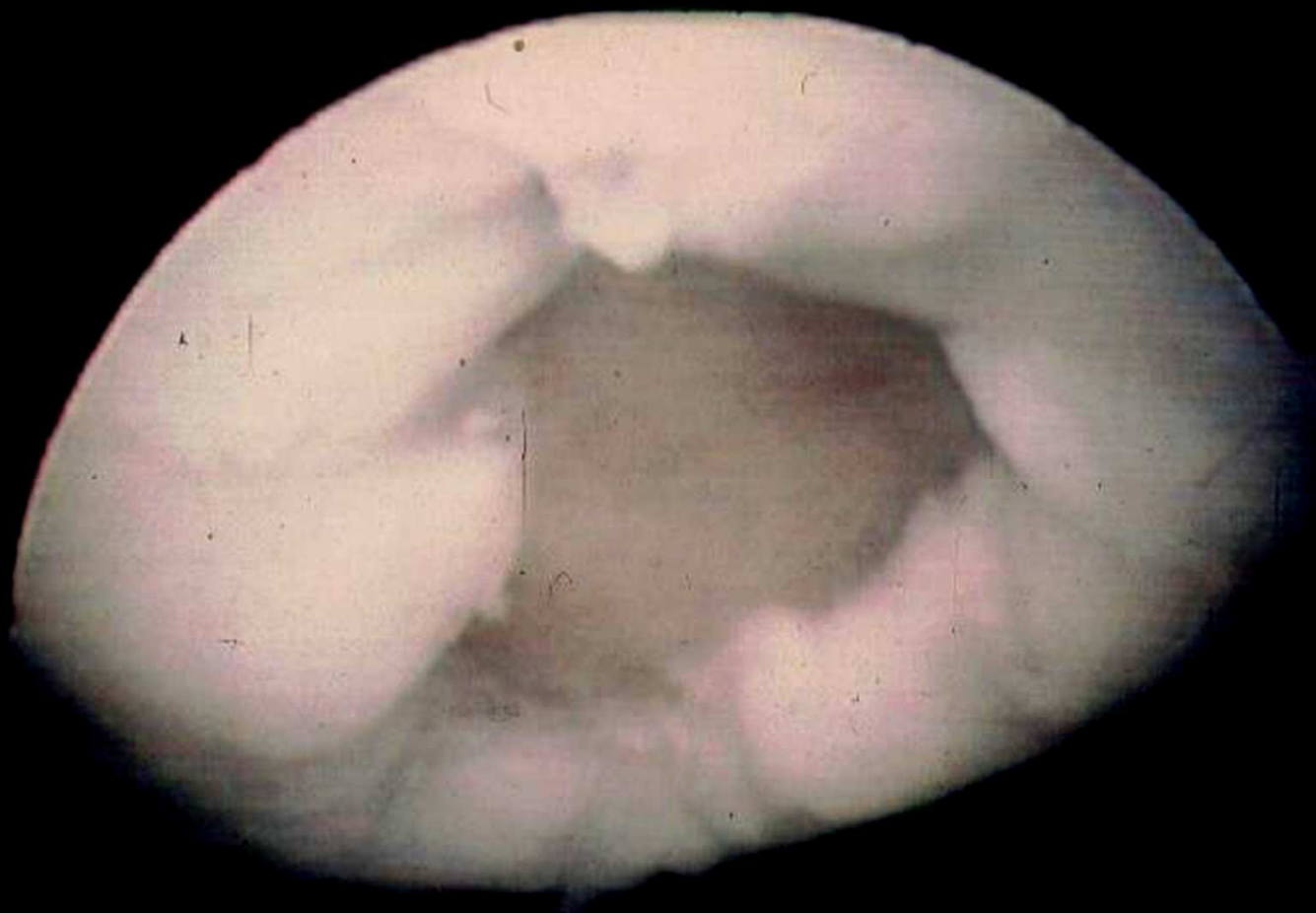
- Hematoma fills the defect
 - Reparative fibrocartilage forms
 - joint surface contour partially restored
 - improved symptoms
 - delays need for reconstructive surgery
- Perforations promote blood clot adhesion

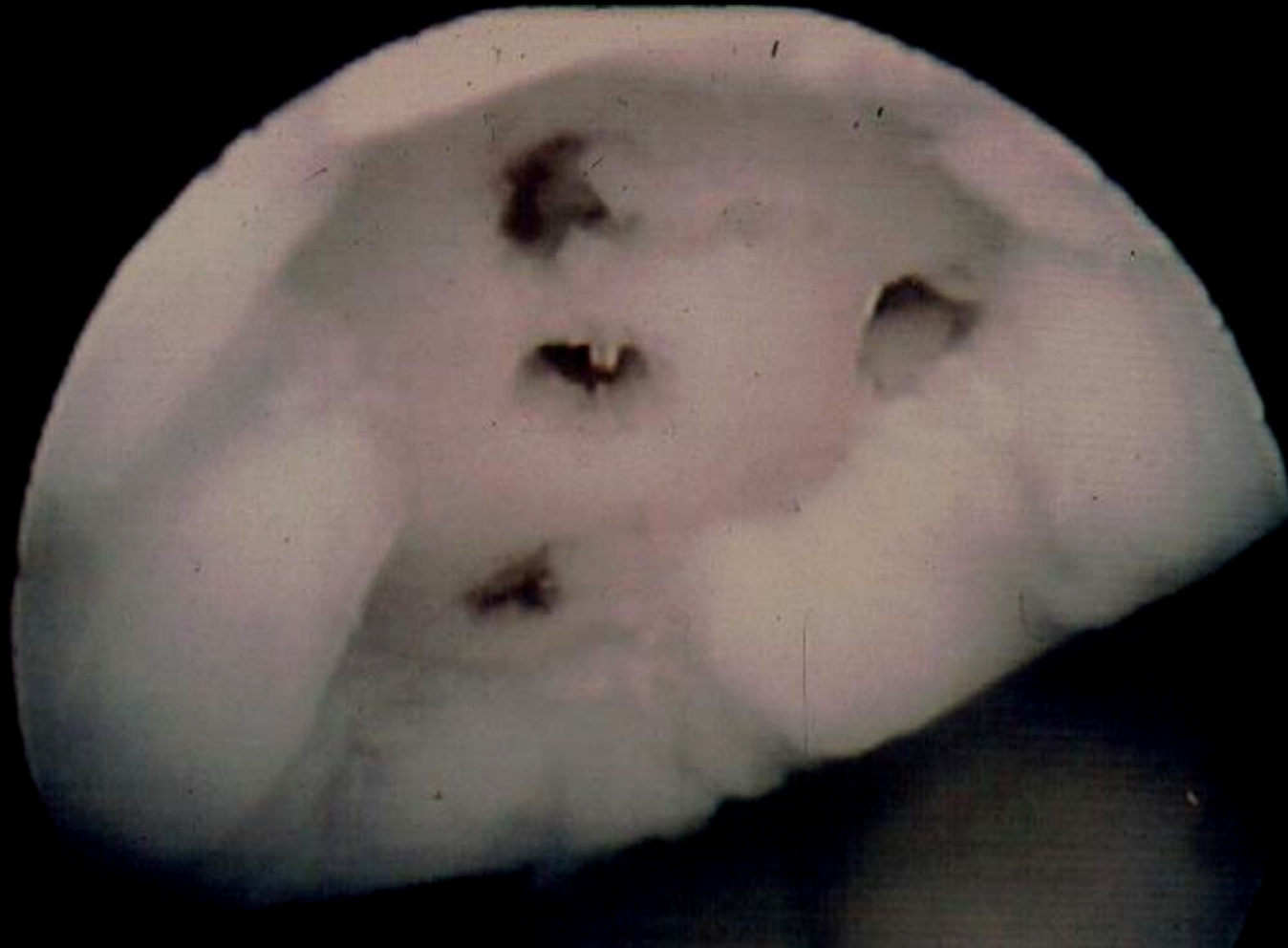


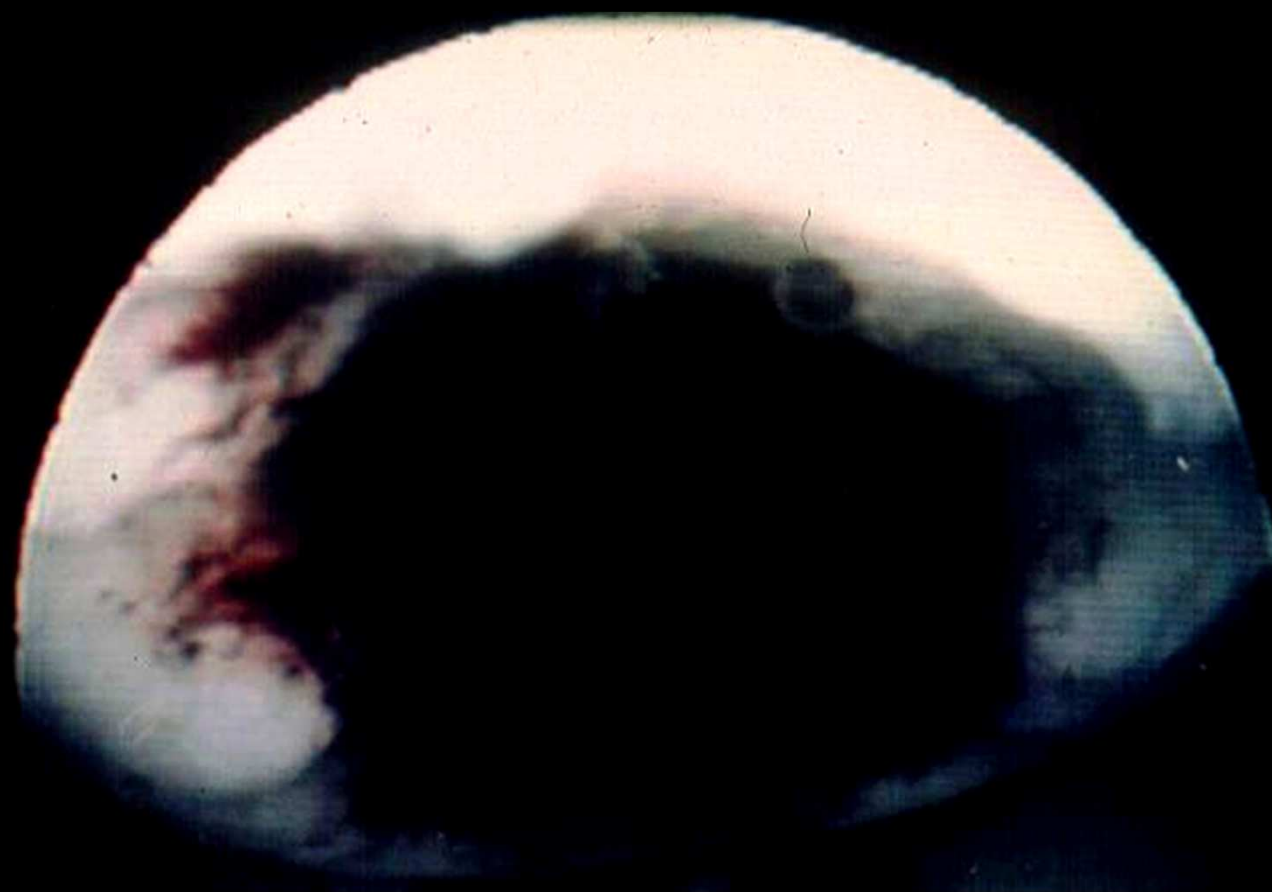
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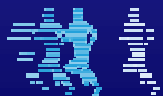






Indications For Surgery

- Young Patient
- Contained Lesion
- Stable Knee
- Not Overweight
- Motivated For Rehabilitation



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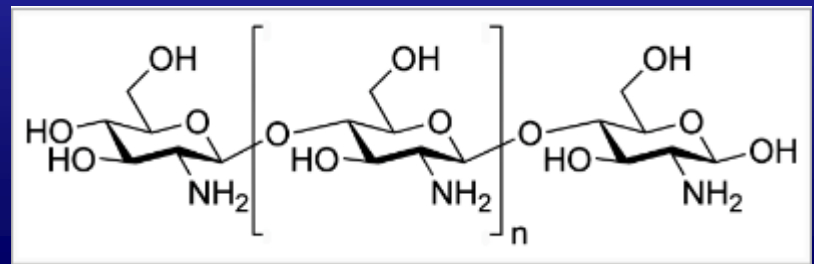
CarGel

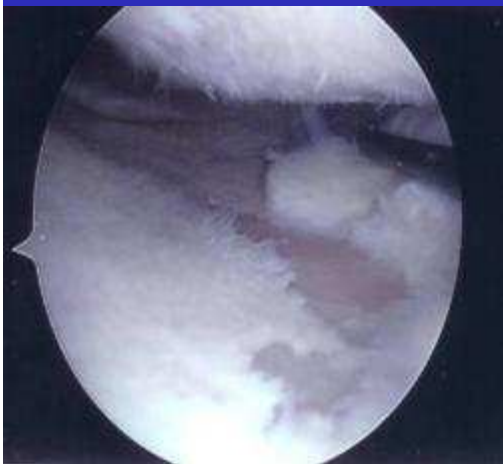
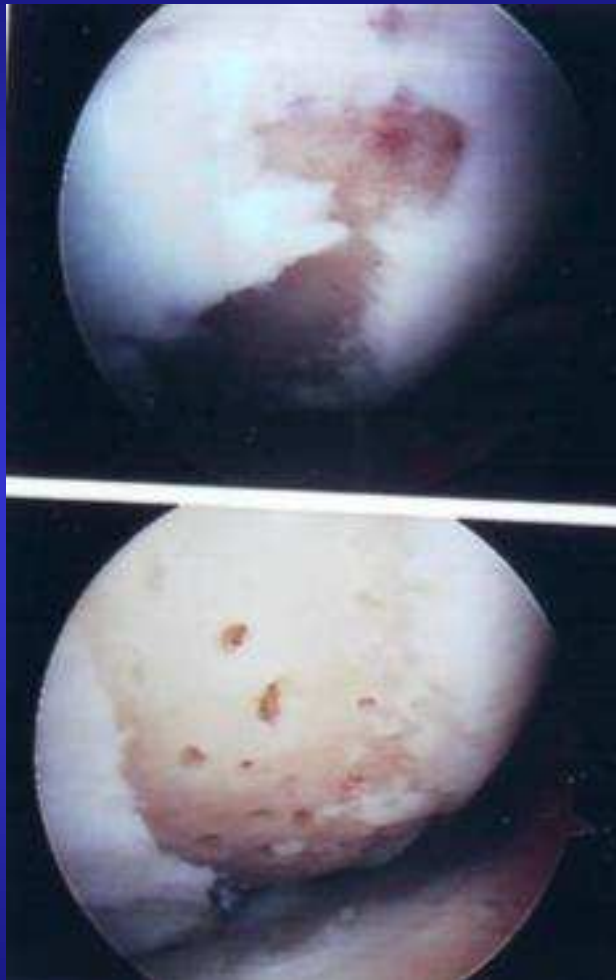
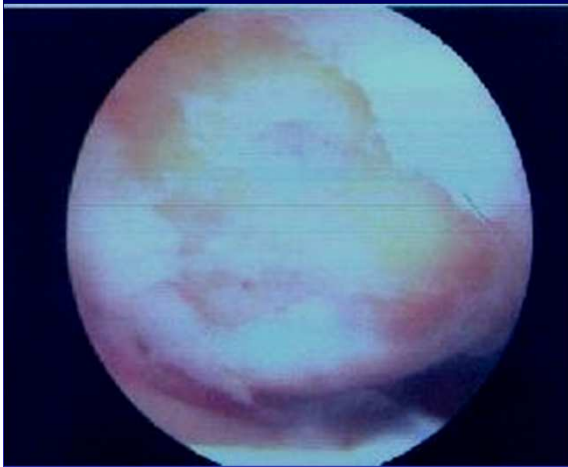
- Chitosan based scaffold
 - Mixed with blood (shrimp exoskeleton)
 - Placed on defect after microfracture
 - Needs 15 minutes to set
-
- Physically stabilize the clot that forms
 - Guide and enhance marrow-derived repair

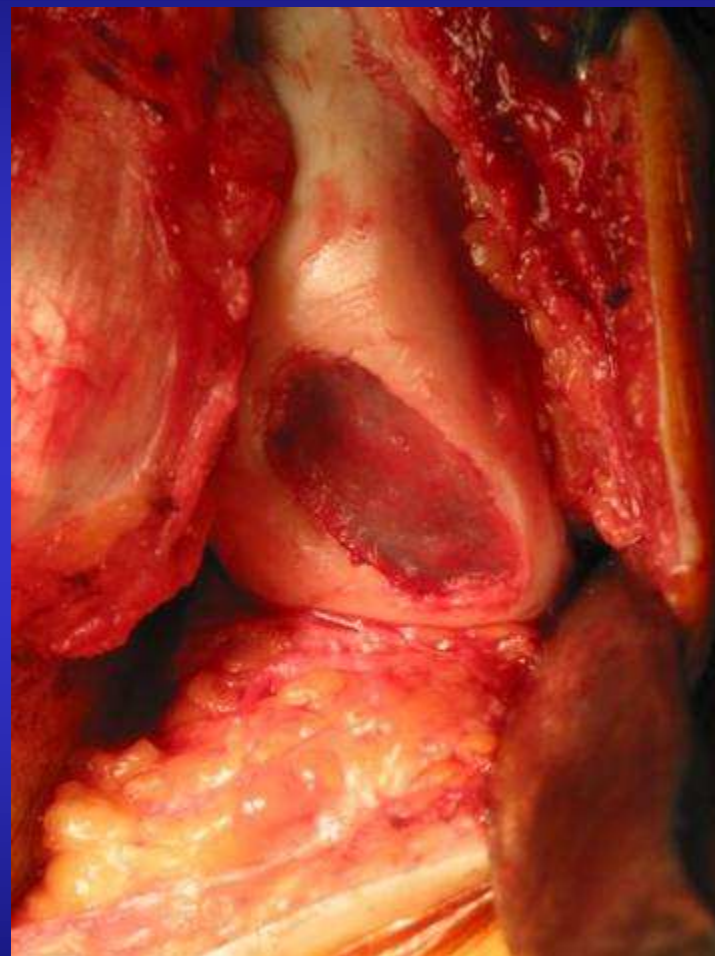
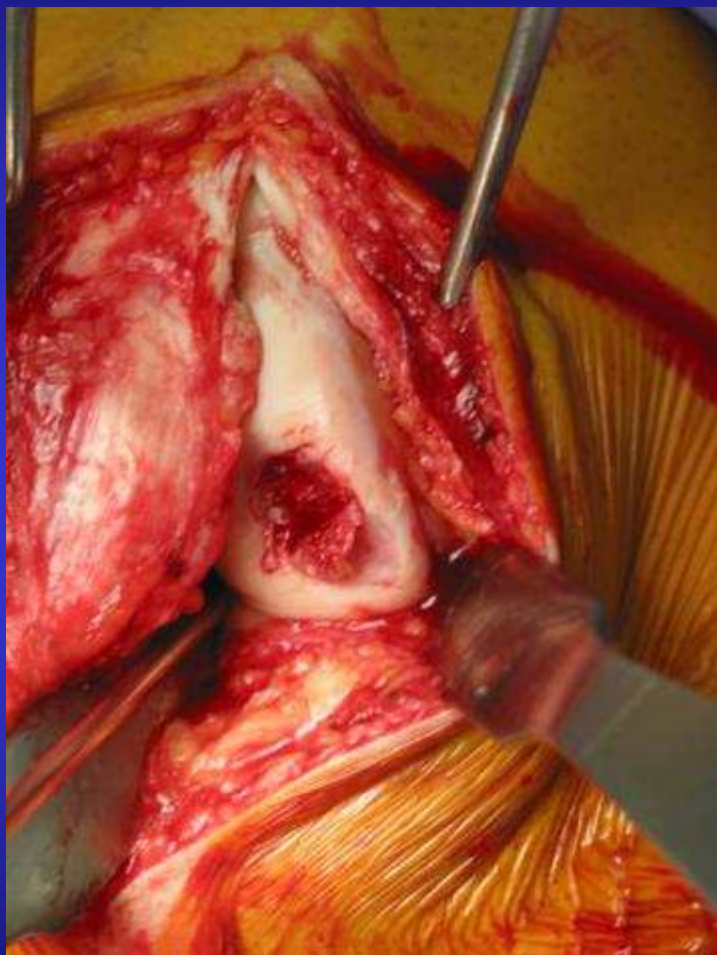


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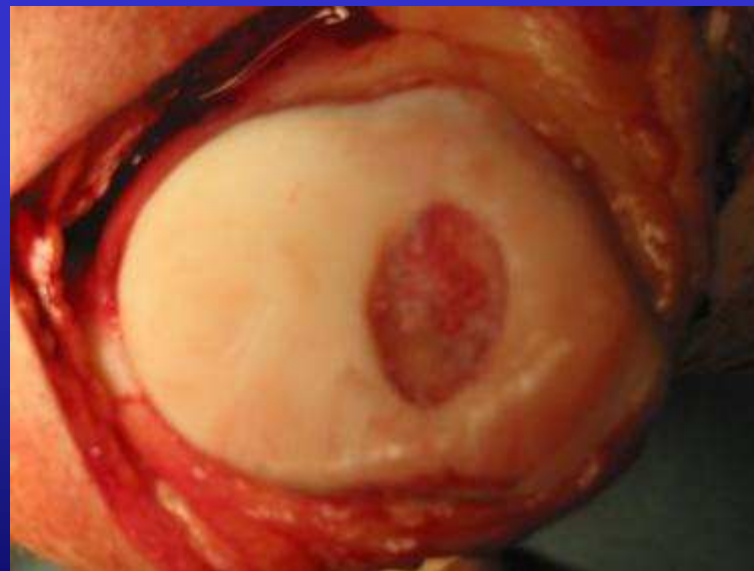
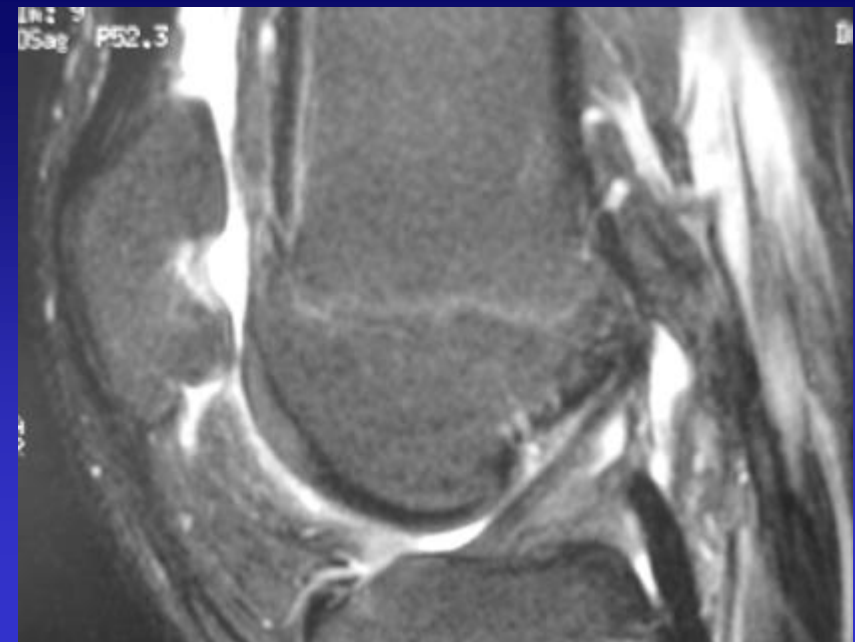
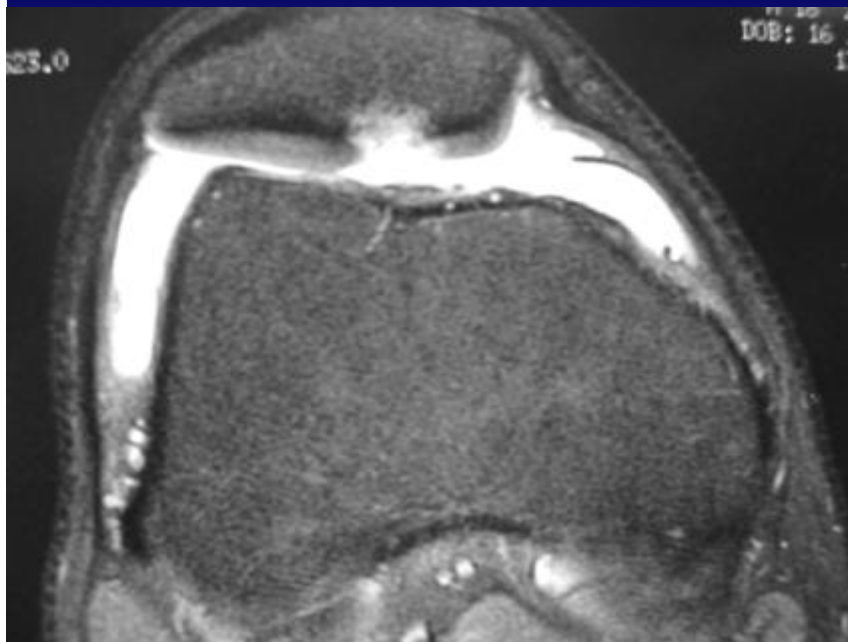






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Prognosis

- Smaller Lesions Do Better
- Femoral Condyle
 - Better Than Tibial
 - Better Than Patella
- Kissing Lesions Don't Do As Well
- Not For Arthritis



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Rehabilitation Variable

- Site of lesion
 - Femoral condyle different from patella
- Size
 - Larger more conservative
- Surgery
 - Contained can be more aggressive
- Talk to the surgeon



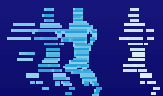
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Protection Phase (0-6 WEEKS)

- Allow incorporation of implant
- Promote chondrocyte activity
- Prevent adhesions
- Prevent loss of muscle strength



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WEEK 0-3

- Brace straight 24 hours
- CPM can help
- NWB depending on site
- Isometric quads exercises
- Ice, local treatment modalities



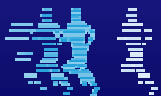
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WEEK 3-6

- PWB depending on site of lesion
- Exercises
 - Closed chain
 - Hydrotherapy
 - Gentle bike riding



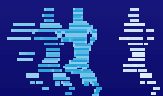
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Loading Phase (WEEK 6-12)

Controlled loading and pressure gives the knee the necessary stimulus to promote hyaline cartilage regeneration and restore normal joint function



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WEEKS 6-12

- Full ROM
- Graduated FWB
- Wean off crutches
- Exercises
 - Resisted cycling
 - Closed chain resisted quads
 - Walking
 - Hydro
 - Gentle proprioceptive exercises



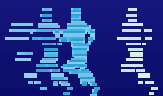
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3-6 MONTHS

- Strengthening exercises
- Avoid impact loading (No jogging/jumping)
- ?? Resisted exercises
- ?? Start jogging at 6 months
- ?? Sport 6-12 months



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WORK

- Sedentary Work 2 Weeks With Crutches
- Standing Work 6 Weeks
- Physical Work 3-6 Months



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Biomechanical Basis of Osteotomy

Transfer weight bearing forces from the arthritic portion of the knee to a healthier location in the knee joint to increase the lifespan of the knee

- Realigns the weight bearing forces
- Unloads the worn out joint



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Goals of Realignment Osteotomy

- Pain relief
- Functional improvement
- Permit heavy demands
- Buy time before arthroplasty



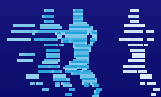
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Goals of Realignment Osteotomy

- Pain relief
- Functional improvement
- Permit heavy demands
- **Buy time before arthroplasty**



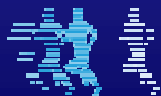
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Osteotomy is different nowadays

- Intervene earlier
 - Smaller angular corrections
- Combined Procedures
 - ACL, PCL, Cartilage work



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Contra-indications

- Diffuse knee pain
- Patellofemoral pain as primary complaint
- Moderate/severe instability
- Diffuse arthrosis
- Inflammatory disease



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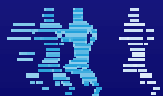
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Unrealistic patient expectations

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Relative Contra-indications

- Age > 60 yrs
- ROM < 90°
- Obesity (1.3x)
- Severe arthrosis
- Tibiofemoral subluxation (1 cm)



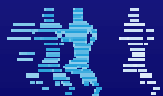
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Results

- 80% still good at 5 years
- 60% still good at 10 years
- The operation is expected to fail
- It buys time for the patient to be active before their TKR



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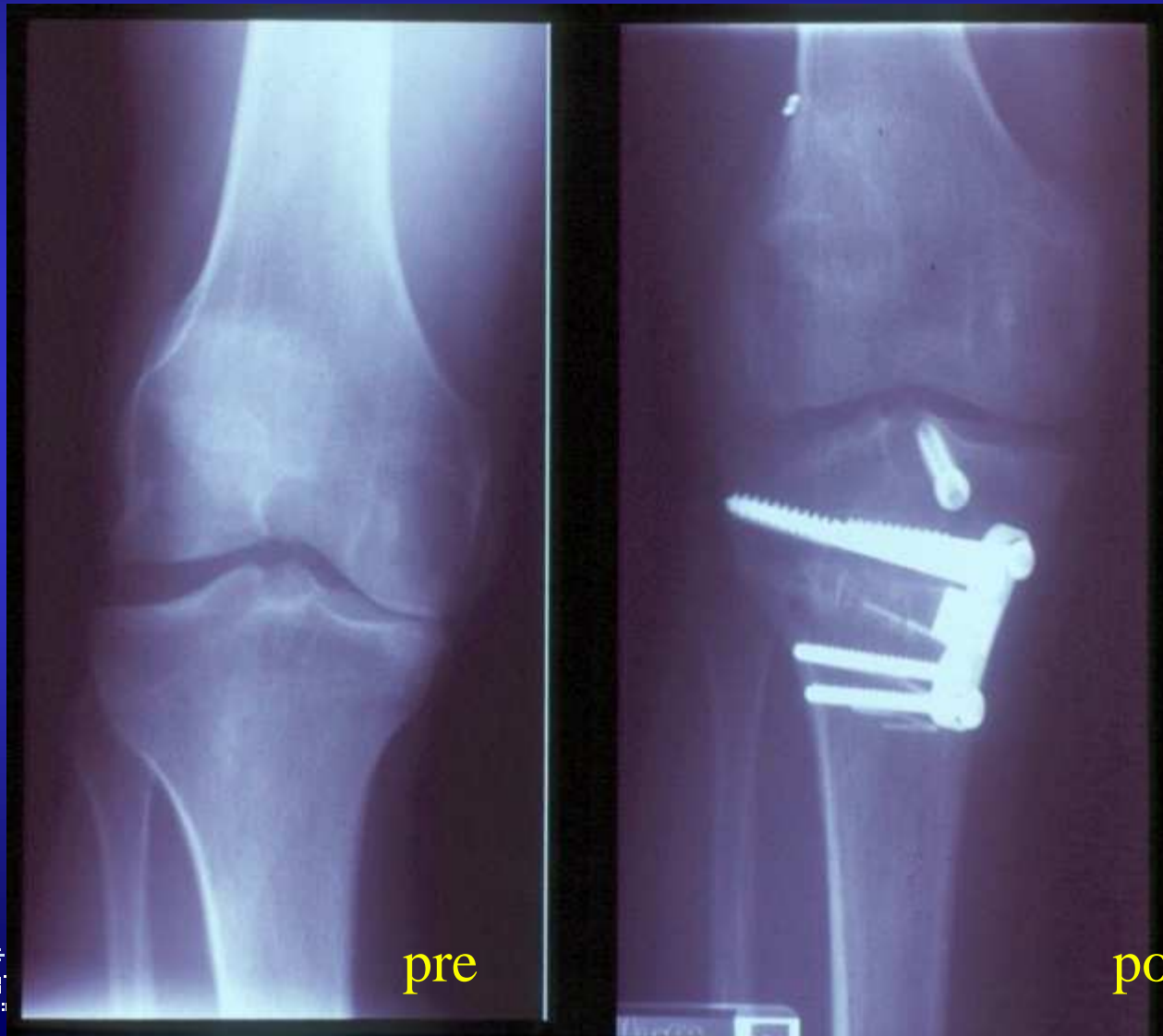


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Medial Opening Wedge HTO



post Dr Doron Sher
& Shoulder Surgery

Post-Operative Management

- Hinged brace
- Full range of motion
- Touch → protected weight-bearing
 - over 3 months



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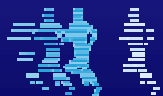
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Post-Operative Management

Return to:

- ADL 3 - 4 months
- Work (standing)
4 - 6 months
- Sports 4 - 6 months



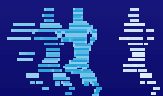
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Realignment Osteotomy

- Active population / increasing longevity
- Current indications narrow
- Patient selection
- Accurate surgical technique
- Combines well with cartilage surgery



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