

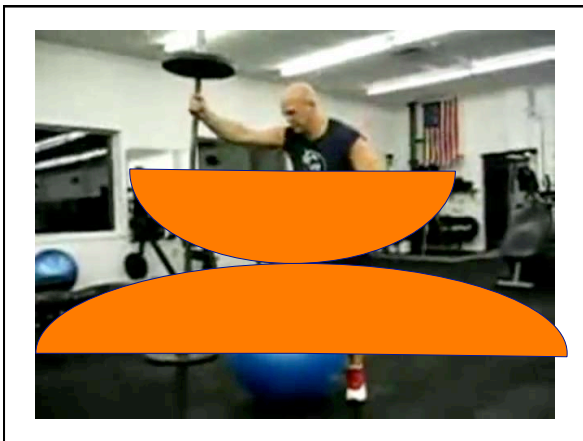
**Trochleoplasty**  
Different techniques, indications, risks, results

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**Patellar instability**

- ✓ Valgus quadriceps angle
- ✓ Patella alta
- ✓ Soft tissue imbalance
- ✓ Patellofemoral dysplasia
- ✓ Lateral release
- ✓ MPFL
- ✓ Insall Mansat
- ✓ TT osteotomy

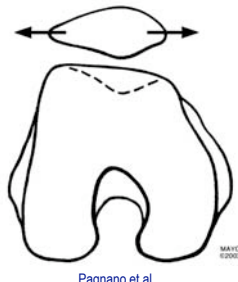
→ Trochleoplasty



**Trochlea dysplasia**

- ✓ Patients with substantial trochlea dysplasia present an unsolved problem
- ✓ If the trochlea is truly flat or convex, there is little chance to correct the instability without creating instability in the opposite direction


→ Trochleoplasty



Pagnano et al.

**Principle**

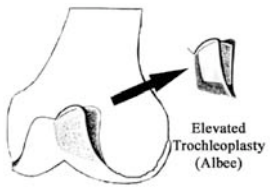
- ✓ Correct patellofemoral congruence
- ✓ 2 types of trochleoplasty:
  - Lateral-facet elevating
  - Sulcus deepening



Mulford et al.

**Lateral-facet elevating**

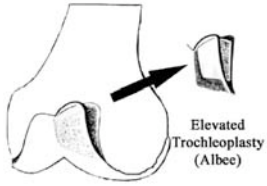
- ✓ pioneered in 1915 by Albee
- ✓ “a simple change of the architecture of the outer condyle of the femur.”
- ✓ Osteotomy of the lateral condyle to produce a hinge near the intercondylar groove



Elevated Trochleoplasty (Albee)

### Lateral-facet elevating

- ✓ The osteotomy of the condyle should be at least 5 mm from the cartilage to prevent necrosis of the trochlea
- ✓ The lateral part is elevated open to create a 5-mm gap and a wedge of corticocancellous bone is inserted




Elevated Trochleoplasty (Albee)

### Lateral-facet elevating

- ✓ Fixation can be obtained with absorbable or nonabsorbable transosseous sutures
- ✓ The lateral facet is elevated sufficiently to block any further tendency of the patella to dislocate

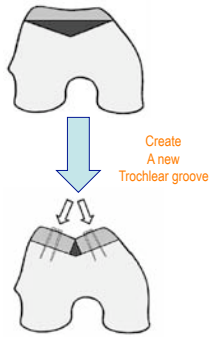
### Lateral-facet elevating

- ✓ Easy technique
- ✓ the lateral facet is elevated sufficiently to block any further tendency of the patella to dislocate
- ✓ Care must be taken to ensure that the procedure does not result in greater trochlear prominence, which might give rise to impingement in flexion.



### Sulcus-deepening

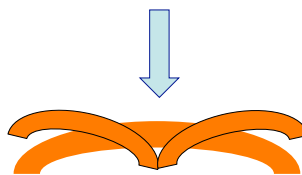
- ✓ First described by Masse in 1978
- ✓ modified and formalized by Henri Dejour in 1987
- ✓ abolish the prominence of the trochlear sulcus and to establish a groove of correct depth



Create A new Trochlear groove

### Sulcus-deepening

- ✓ This trochleoplasty is technically more demanding.
- ✓ However, it has the advantage of addressing the root cause of the dislocation by correcting the abnormal patterns underlying the different grades of trochlear dysplasia

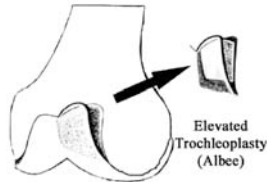


### Post-operative care

- ✓ Immediate weight-bearing is permitted. No limitation is placed on the range of motion.
- ✓ Rehabilitation on continuous passive motion can be indicated to model the trochlea and the patella

## Risks and complications

- ✓ Disruption of the cartilage surface and changes in the contact pressure, potentially leading to patellofemoral arthritis
- ✓ Necrosis



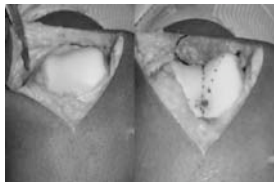
## Risks and complications

- ✓ Recurrent instability
  - Trochleoplasty alone may not always provide sufficient stability
- ✓ Stiffness ++
  - Effective anesthesia and physiotherapy
- ✓ Effusion
  - Resolves 3 to 6 months postoperatively
- ✓ Patellofemoral crepitus
  - often not symptomatic
- ✓ Patellofemoral pain
  - Often predent. reduction of postoperative patellofemoral pain is not always predictable



## Results

- ✓ Unfortunately, there is little literature to guide the surgeon in this area



## Results

- ✓ The Albee technique of raising the lateral condyle and supporting it with a bone graft has had poor results with early arthritic change being common

Albee FH. The bone graft wedge in the treatment of habitual dislocation of the patella. *Med Rec.* 1915;88:257-259.

## Results

- ✓ In Dejour's series, 32 patients underwent 40 trochleoplasties. Twenty-seven knees were subjectively satisfied or very satisfied, with 36 achieving patellar stability postoperatively

Dejour H, Neyret P, Walch G. Factors in patellar instability. In: Aichroth PM, Dilworth Cannon W, eds. *Knee Surgery Current Practice*. London, UK: Martin Dunitz Ltd; 1992:403-412.

## Results

- ✓ Thirteen knees in twelve patients
- ✓ Patellar pain with or without recurrent patellar instability
- ✓ Seven patients had a poor score
- ✓ Postoperative arthrofibrosis was found in five of the thirteen knees

Verdonk R, Jansegers E, Stuyts B. Trochleoplasty in dysplastic knee trochlea. *Knee Surg Sports Traumatol Arthrosc.* 2005;13:529-533.

## Results

- ✓ 45 knees in 38 patients (22 female and 16 male) with a mean followup of 8.3 years
- ✓ Thirty-three percent of the knees had undergone previous patellar procedures such as debridement, medial reefing, lateral release, or medial tibial tuberosity transfer
- ✓ No re-dislocations, but in one-third of the patients patellofemoral pain worsened after the procedure
- ✓ 94% of the patients demonstrated a correction of the dysplasia, but degenerative changes were present in 30% of the knees
- ✓ Authors concluded that the procedure treated the recurrent dislocation, but its effects on pain and degenerative changes were unpredictable

Von Knoch F, Bohm T, Burgi M, et al. Trochleoplasty for recurrent patellar dislocation in association with trochlear dysplasia. J Bone Joint Surg Br 2006; 88B:1331-1335.

## Indications

- ✓ A patient with:
  - ✓ symptomatic patella instability,
  - ✓ who has failed a nonoperative treatment,
  - ✓ with severe trochlear dysplasia,
  - ✓ and no degenerative changes in the patellofemoral joint,
  - ✓ is the ideal candidate for trochleoplasty.

## Conclusion

- ✓ Trochleoplasty is in its infancy!
- ✓ The long-term results are not yet available, although short-term results seems encouraging



## Remember!

