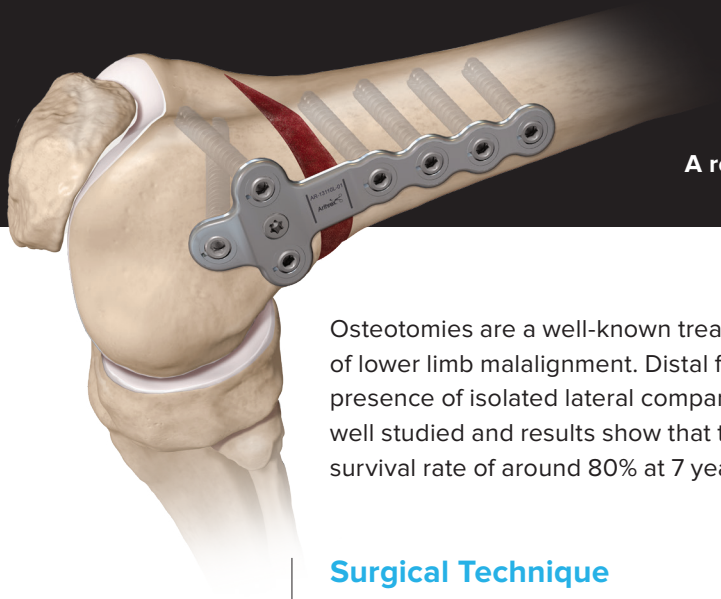

Distal Femoral Osteotomy Scientific Update

A review of the design rationale, techniques, and outcomes

Osteotomies are a well-known treatment to unload the affected knee compartment in cases of lower limb malalignment. Distal femoral osteotomies (DFO) should be considered in the presence of isolated lateral compartment arthritis.[1] The opening wedge technique has been well studied and results show that the technique allows for a more precise correction with a survival rate of around 80% at 7 years.[1]

Surgical Technique

Ekeland A, Nerhus TK, Dimmen S, Heir S

Good functional results of distal femoral opening-wedge osteotomy of knees with lateral osteoarthritis. *Knee Surg Sports Traumatol Arthrosc*. 2016;24(5):1702-1709. doi: 10.1007/s00167-016-3988-2.

- In this study, the authors reported functional outcomes using the Knee Injury and Osteoarthritis Outcome Score (KOOS) for 24 consecutive patients with lateral knee osteoarthritis treated with DFO.
- KOOS increased significantly as compared with baseline during the first year by 28% to 122% for all five subscores. This notable gain in functional outcomes remained at 10-year follow-up for those with surviving osteotomy. Six knees (25%) were converted to total knee arthroplasty (TKA) at a mean of 6.4 years (CI 3.3–9.6, range 4.0–11.8). The DFO survival rate was 74% at 10 years.

Finkelstein JA, Gross AE, Davis A

Varus osteotomy of the distal part of the femur: a survivorship analysis. *J Bone Joint Surg Am*. 1996;78(9):1348-1352. doi: 10.2106/00004623-199609000-00008.

- The authors followed 21 knees (20 patients) long term or until failure after undergoing DFO. The probability of survival at 10 years was 64% (95 CI 48–80%).
- The authors concluded DFO is effective for the treatment of lateral compartment arthritis in the indicated patient with valgus deformity.

Saithna A, Kundra R, Getgood A, Spalding T

Opening wedge distal femoral varus osteotomy for lateral compartment osteoarthritis in the valgus knee. *Knee*. 2014;21(1):172-175. doi: 10.1016/j.knee.2013.08.014.

- Four patients underwent TKA (19%) at a mean of 4.5 years. The cumulative survival rate for the procedure was 79% at 5 years.
- Functional outcomes scores (KOOS Pain and International Knee Documentation Committee) in the surviving cohort improved significantly from baseline.

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Thein R, Bronak S, Thein R, Haviv B

Distal femoral osteotomy for valgus arthritic knees. *J Orthop Sci.* 2012;17(6):745-749. doi: 10.1007/s00776-012-0273-1.

- This study reported on 6 patients (7 knees) after undergoing DFO with a mean follow-up of 6.5 years.
- Clinical outcomes were assessed by the Oxford Knee Score. The mean Oxford Knee Score improved from 13.1 ± 8.6 to 26 ± 12.5 from preoperation to most recent follow-up.
- No patients required additional surgery.

Wang JW, Hsu CC

Distal femoral varus osteotomy for osteoarthritis of the knee. *J Bone Joint Surg Am*. 2005;87(1):127-133. doi: 10.2106/JBJS.C.01559.

- In this study, 30 patients (30 knees) were managed with DFO for the treatment of noninflammatory lateral-compartment arthritis with an associated valgus deformity.
- The authors reported 25 patients (83%) had a satisfactory result, 2 (7%) had a fair result according to the Hospital for Special Surgery rating system, and 3 (10%) were converted to a TKA. With conversion to TKA as the end point, the cumulative 10-year survival rate for all patients was 87% (95% CI, 69% to 100%).

Zarrouk A, Bouzidi R, Karray B, Kammoun S, Mourali S, Kooli M

Distal femoral varus osteotomy outcome: Is associated femoropatellar osteoarthritis consequential? *Orthop Traumatol Surg Res*. 2010;96(6):632-636. doi: 10.1016/j.otsr.2010.04.009.

- The authors reported on 20 patients (22 knees) after undergoing opening DFO for lateral tibiofemoral osteoarthrosis of a valgus knee.
- Eighteen knees had good or excellent results (80%), 2 had fair results (9.5%), and 2 had poor results (9.5%). The 8-year survival rate was 91% (CI 69–100%).
- The mean preoperative International Knee Society score increased from 49.28 to 74.23 at the most recent follow-up.

References

1. Rosso F, Margheritini F. Distal femoral osteotomy. *Curr Rev Musculoskelet Med*. 2014;7(4):302-311. doi:10.1007/s12178-014-9233-z

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