## Uncompromised Total Knee Arthroplasty Function After Distal Femoral Osteotomy: A Self-Matched Study of Bilateral Total Knee Arthroplasties Following Unilateral Osteotomy with a Mean 32-Year Follow-Up

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INTRODUCTION:

Distal femoral osteotomies (DFOs) are commonly used for the correction of valgus deformities and in the setting of lateral compartment osteoarthritis. However, the impact of a DFO on subsequent total knee arthroplasty (TKA) function remains a subject of debate. Therefore, the purpose of this study was to determine the effect of a unilateral DFO on subsequent TKA function in patients with bilateral TKAs, using the contralateral knee as a self-matched control group. METHODS:

Inclusion criteria consisted of patients who underwent simultaneous or staged bilateral TKA after prior unilateral DFO. The

type of osteotomy performed, osteotomy hardware fixation, implanted TKA components, and revision rates were recorded. Postoperative outcomes including Forgotten Joint Score-12 (FJS-12), Tegner Activity Scale score, and subjective knee preference were also obtained at final follow-up. **RESULTS:** 

A total of 21 patients underwent bilateral TKA following unilateral DFO and were followed for an average of 31.5 ± 11.1 years (range 20.2 - 74.2 years) after DFO. The average time from DFO to TKA conversion was 13.1 ± 9.7 years with 61.9% of DFO knees converting to TKA more than 10 years after DFO. There was no difference in arthroplasty constraing for the DFO-TKA and TKA-only knees (p > 0.999). At final follow-up, the mean FJS-12 of the DFO-TKA knee was 62.7 ± 36.6 while for the TKA-only knee it was  $65.6 \pm 34.7$  (p = 0.328). Eighty percent of patients had no subjective knee preference or preferred their DFO-TKA knee. Three DFO-TKA knees and two TKA-only knees underwent subsequent revision following index arthroplasty at a mean of 12.8 and 8.5 years, respectively (p > 0.999). **DISCUSSION AND CONCLUSION:** 

In this self-matched study, DFOs resulted in long-term joint preservation of more than a decade prior to TKA conversion. Additionally, DFOs did not affect subsequent TKA function as clinical outcomes, subjective knee preference, and revision ratae were similar in hoth the DFO-TKA and TKA-only knees at mean 32-year follow-up.

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