

# 5 Year Follow Up Data for Cementless Total Knee Arthroplasty Patients

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## INTRODUCTION

- Cemented fixation of total knee arthroplasty (TKA) has been shown to have long term issues resulting in cement degradation & implant loosening over time.
- Cementless TKA as a solution to this issue has gained popularity due to the advancements in biomaterials & use of current generation polyethylene.
- These innovations have led to improved survivorship of modern cementless TKA implants & adaptation by orthopedic surgeons.
- Favorable results using this implant have been published, though most literature to date has been limited by short term follow-up.
- The purpose of this study was to evaluate patient clinical & radiographic outcomes after cementless total knee arthroplasty with a minimum follow up of 4.5 years.

## METHODS

- A retrospective cohort study was performed on 28 primary cementless TKAs.
- Components utilized the same 3D printed design & manufacturer with a minimum of 4.5-year follow-up.
- A single surgeon at a single institution performed all TKAs between 2013 - 2016.
- Patients underwent cementless TKA based on an intraoperative evaluation of bone quality.
- Patients' charts were reviewed for demographics, TKA revisions, range of motion, Knee Society Knee Scores (KSKS) & Function Scores (KSFS), postoperative Knee Injury & Osteoarthritis Outcome Scores for Joint Replacement (KOOSJR), & perioperative complications.
- Radiographs were evaluated for malalignment, subsidence, radiolucent lines, osteolysis, & component loosening.
- Two tailed independent t-test & chi-squared analysis was used with statistical significance defined as  $p < 0.05$ .



## RESULTS

	Cementless TKA N=28
Average Follow-up (Months)	60±4.8
Average Age	66.6±8.8
BMI	32.39±6.7
KOOSJR Score	84.56±16.17
KSKS pre-op	46.18±11.42
KSKS post-op	98.18±3.96
KSFS pre-op	47.32±11.18
KSFS post-op	98.21±4.12
Pre-op Extension	3.75±2.24
Pre-op Flexion	116.96±5.32
Post-op Extension	0
Post-op Flexion	132.5±4.61

- Average follow up was 5 years.
- 8 patients underwent bilateral TKAs & 20 underwent unilateral TKAs.
- 1 radiograph image showed 2 mm of non-progressive varus subsidence that did not require intervention.
- 1 patient required a revision of their femoral component for ligamentous instability following a fall.
- There were no cases of aseptic loosening requiring revision.
- There were no cases of infection.

## CONCLUSION

- The 4.5 year follow up clinical & radiographic results of cementless TKA are promising.
- There were no cases of aseptic loosening requiring revision with an average follow up of 5 years.
- These results show promising KOOSJR scores, high KSKS & KSKF scores as well as acceptable post-operative range of motion.
- Our study demonstrates how the advancement in biologic fixation through highly porous coating, improvements in immediate tibial baseplate structural fixation, & utilization of current-generation polyethylene have contributed to excellent outcomes for cementless TKA.
- As the proportion of younger, more active, & obese patients receiving primary TKA continues to increase, cementless TKA can become a viable option for these patients.
- This study is clinically significant as outcome data remains positive for longer term follow up with patients with cementless TKAs.
- This is clinically relevant as cementless total knee arthroplasty remains a good alternative to cemented TKA in certain patients.

