

## **Undergoing Cartilage Procedures before Total Knee Arthroplasty is Not Associated with Worse Postoperative Functional Outcomes, Readmission Rates, or Complication Rates**

Irfan Ali Khan<sup>1</sup>, Nicholas Francis Cozzarelli, Carlo Coladonato<sup>2</sup>, Hassan V Siddiqui, Fotios Paul Tjoumakaris, Kevin Blake Freedman<sup>3</sup>, Yale Fillingham

<sup>1</sup>Rothman Orthopaedic Institute, <sup>2</sup>Sports Medicine, <sup>3</sup>Rothman Institute

**INTRODUCTION:** Patients undergoing total knee arthroplasty (TKA) with prior cartilage surgery have unclear outcomes in the literature, with different studies reporting inferior or equivocal outcomes. This study compared outcomes after TKA in patients with or without prior cartilage surgery. We hypothesized there would be no difference in outcomes between patients with or without prior cartilage procedures.

**METHODS:** A retrospective matched case-control study was conducted. Patients who underwent ipsilateral cartilage procedure(s) and TKA (cases) or TKA alone (controls) from 2000 – 2022 were identified from our database with the following current procedural terminology codes: 27447 (TKA), 27412 (Autologous Cartilage Implantation [ACI]), 27415 (Osteochondral Allograft [OCA]), and 29879 (Microfracture [MFx]). Cases and controls were matched in 1:3 ratio for age, sex, body mass index, Charlson Comorbidity Index, pre-TKA Kellgren-Lawrence osteoarthritis grade, and follow up for the Knee Injury and Osteoarthritis Outcome Score Joint Replacement (KOOS-JR). Inclusion criteria encompassed a minimum of one-year follow up for KOOS-JR scores. Exclusion criteria comprised controls having other prior ipsilateral knee surgery. *Mann-Whitney-U* and *Chi-Squared* analyses were conducted, with significance being a p-value less than 0.05. A-priori power analysis required 29 patients per cohort to reach a clinically detectable difference of 11 for KOOS-JR.

**RESULTS:** Forty-three cases (one ACI, eight OCA, 34 MFx) and 129 controls were included after matching, with no significant demographic differences. Cases underwent TKA after cartilage surgery at a mean of 4.6 years. No significant differences existed between cases and controls for preoperative KOOS-JR scores (45.2 vs. 47.8;  $p = 0.353$ ), postoperative KOOS-JR scores (69.8 vs. 69.9;  $p = 0.974$ ), or Delta KOOS-JR (30.4 vs. 26.0;  $p = 0.387$ ). No significant differences existed between cases and controls for 90-day readmission rates (4.7% vs. 2.3%;  $p = 0.600$ ) or revision TKA rates (11.6% vs. 5.4%;  $p = 0.177$ ).

**DISCUSSION AND CONCLUSION:** Patients with and without prior cartilage surgery experience similar functional outcomes, readmission rates, and revision rates after TKA. Future studies should be conducted with larger sample sizes.