# Blood Loss in Primary and Aseptic Revision Total Knee Arthroplasty: A Retrospective Matched Cohort Analysis

Honglin Xiao BS,[1] Evan R. Deckard BSE,[1]
Mary Ziemba-Davis BA,[2] R. Michael Meneghini MD[1,2]

[1] Indiana University School of Medicine, Indianapolis, IN
[2] IU Health Physicians, Orthopedics & Sports Medicine, Fishers, IN

**Background and Hypothesis:** While blood loss in primary TKA is well-characterized, there is a paucity of data on blood loss in aseptic revision TKA. In this study, we hypothesized that revision TKAs would have increased blood loss compared to matched primary TKAs.

**Project Methods:** Two-hundred-ninety consecutive revision TKAs performed between 2010 and 2017 were retrospectively reviewed and matched to primary TKAs on surgeon, age, sex, BMI, and ASA Score. Seventy-four revision TKAs were excluded for factors affecting blood loss. Potential covariates affecting blood loss were compiled from the medical record. Outcomes including total blood loss, drain output rate, and change in hemoglobin levels from preoperative to postoperative day one were assessed.

**Results:** Two-hundred-sixteen revision TKAs matched to 216 primary TKAs were analyzed. Multivariate analysis showed no difference in blood loss metrics comparing primary and revision TKAs. However, increased tourniquet time ($p$=0.001), elevated BMI ($p$=0.002), male sex ($p$<0.001), and lack of topical TXA ($p$=0.005) significantly increased total blood loss. Similar results were found for increased drain output rate in addition to lack of intravenous TXA ($p$<0.001) and a trend for lower age ($p$=0.073). Increased tourniquet time ($p$=0.004) and lack of topical TXA ($p$=0.002) correlated with a greater drop in hemoglobin postoperatively.

**Conclusion and Potential Impact:** Primary and revision TKAs showed no difference in blood loss. However, increased tourniquet time and withholding topical TXA significantly increased total blood loss, drain output rate, and change in hemoglobin levels. This data continues to support emphasizing procedural efficiency and TXA use in revision TKA.