

## Is the Canadian Orthopaedic Foot and Ankle Society Ankle Arthritis Score (COFAS AAS) Associated with the Need for Revision Surgery?

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**Introduction/Purpose:** There has been limited evidence to support the effective use of a patient reported outcome measure (PROM) for patients that have undergone surgical treatment for end-stage ankle arthritis (ESAA). This study used longitudinally collected patient-data from a cohort of patients in the Canadian Orthopaedic Foot and Ankle Society (COFAS) ankle arthritis study to evaluate whether the post-operative COFAS Ankle Arthritis Score (COFAS AAS), a patient-reported outcome (PROs), was associated with need for revision surgery.

**Methods:** Between 2001 and 2010, a cohort of 623 patients and 653 ankles undergoing total ankle replacement or ankle arthrodesis were enrolled in a multicenter prospective ankle reconstruction study. At pre-surgical baseline, key patient level variables were collected including demographics, body mass index, and comorbidities. The COFAS AAS, a patient-reported outcome measure was collected at baseline and annually post-surgically. Time to revision surgery was modeled using a proportional hazards model which controlled for age, sex, BMI, diabetic status, smoking status, inflammatory arthritis, and surgery on the right or left side and time varying PROs.

**Results:** 531 ankles in 509 patients with complete pre and post-operative data were included. Seventy of the cohort underwent metal component revision procedures during the follow up time period. The remaining 461 unrevised ankles had a minimum 2 year follow up (average of 3.4 years). Baseline COFAS AAS, age, sex, side, BMI, diabetic status, smoking status, and inflammatory arthritis were not statistically associated with the need for revision surgery. However, revision surgery was found to be associated with a higher post-operative COFAS AAS, and with a longer follow-up. The hazard ratio for the COFAS AAS indicates that for every one-point increase in the score, the rate of revision surgery was one percentage point higher at each post-operative time point.

**Conclusion:** This study demonstrated that patients who reported higher levels of post-operative functional impairment, as indicated by a higher COFAS AAS, were more likely to undergo a revision surgery. This finding is also based on duration of follow-up, with the risk of revision surgery rising with length of follow up. This study provides further evidence for the utility of the COFAS AAS in the clinical setting. Further investigation is warranted to better understand the COFAS AAS's ability to measure clinically meaningful change in an individual patient not requiring revision surgery.