

Salto Talaris Total Ankle Arthroplasty: Analysis of Arc of Motion and Functional Outcomes

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Introduction/Purpose: Reports of range of motion and how it affects patient outcomes following total ankle arthroplasty (TAA) have been mixed. Furthermore, recent studies have relied on clinical exam to obtain postoperative range of motion and have lacked preoperative functional scores. The purpose of our study was to analyze how preoperative range of motion and functional scores change with time following TAA using postoperative functional scores and radiographs for range of motion calculations.

Methods: A retrospective chart review was performed on 145 consecutive patients (149 ankles) that had undergone Salto-Talaris fixed-bearing implant (Integra, Plainsboro, New Jersey) TAA by a single surgeon between 2010 and 2014. Preoperative range of motion was gathered clinically in office by the senior author. Postoperative range of motion through the ankle joint was evaluated with dedicated weight-bearing dorsiflexion and plantar-flexion lateral radiographs at 3 months, 6 months, 1 year and 2 years. The range of motion was measured using the angle measurement tool on the PACS system. Patients completed visual analogue scale (VAS) for and the Foot and Ankle Ability Measure (FAAM) questionnaire subcategorized into activities of daily (ADL) and sports subscale preoperatively and at postoperative intervals of 3 months, 6 months, 1 year and 2 years. The mean age was 65 years (range, 31-83 years). Mean BMI was 25.6 (range, 14.9-44.9). There were 73 males (50%).

Results: The total arc of motion preoperatively was 17.7 degrees and improved significantly ($p < 0.001$) to 27.9, 33.8, 32.6, and 32.2 degrees at 3 months, 6 months, 1 year and 2 years, respectively (Figure 1). VAS score preoperatively was 67.7 and improved significantly ($p < 0.001$) to 27.8, 24.84, 23.7 and 24.46 at 3 months, 6 months, 1 year and 2 years, respectively. FAAM ADL score preoperatively was 48.0 and improved significantly ($p < 0.001$) to 55.7, 71.2, 76.7, and 77.6 at 3 months, 6 months, 1 year and 2 years.

FAAM sports score preoperatively was 21.4 and decreased at 3 months to 19.1 ($p > 0.05$), but then significantly improved ($p < 0.001$) thereafter to 41.5, 47.4, and 52.6 at the same aforementioned time intervals.

Conclusion: Patients undergoing fixed-bearing TAA had continued and sustained improvement from preoperative total arc of motion, pain, and function at each postoperative visit, up to 2 years. Ankle range of motion was noted to peak at 6 months postoperatively. Though pain and function may continue to improve even as far out as 2 years postoperatively, it is not likely that range of motion will continue to increase.

