

Total ankle arthroplasty offers patients greater range of motion and less pain

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Range of motion after total ankle replacement surgery. Credit: Steven Raikin, The Rothman Orthopedics Institute at Jefferson Health

Surgical reconstruction is a life changer for people with end-stage ankle arthritis, a painful condition that limits patients' abilities to go up and down stairs, get out of a car and even walk. Now researchers from The

Rothman Orthopedic Institute at Jefferson Health demonstrate that surgical reconstruction boosts patients' range of motion by more than 60 percent and that translates to significantly less pain and better function completing everyday activities with improvement continuing for at least the first two years following surgery.

The findings will enable surgeons to not only best inform [patients](#) about what improvements to expect as they recover during the first two years after surgery and but also what the surgical repair can do for them—namely, provide a superior quality of life.

"They're really dramatically better than they were before surgery on average," said Steven Raikin, MD, Director of Foot and Ankle Service at the Rothman Orthopedic Institute at Jefferson Health and professor of Orthopedic Surgery at Jefferson Medical College, who published the work September 5th in the *Journal of Bone and Joint Surgery*.

Traumatic injury or repeated sprains wear down cartilage that usually cushions the [ankle](#) joint. Bone-on-bone grinding and arthritis can occur as the protective buffer erodes away. As a result, patients with ankle arthritis have limited range of [motion](#) in their ankle. Together with debilitating pain, the condition prevents patients from doing everyday activities as simple as getting up from a chair. When non-surgical options such as medications, steroid injections or bracing have failed, surgery becomes the only option.

Total ankle arthroplasty, or a complete surgical replacement of the [ankle joint](#), has only become a viable choice in the last decade. With new methods and updated devices, results from total ankle arthroplasty appear effective, but patients wanted to know more about the recovery period.

"The whole idea was to try to create expectation parameters for patients

getting ankle replacements at different time periods in the first two years following surgery," he said.

Dr. Raikin and a team of surgeons and researchers from The Rothman Institute and Thomas Jefferson University Hospital assessed more than 100 patients' range of motion, pain levels and function completing [everyday activities](#) before surgery and then again at three months, six months, one year and two years after total ankle arthroplasty surgery.

On average, surgery improved patients' ankle range of motion in the sagittal plane by 66 percent, from a 20.7-degree angle before surgery to a peak of 34.3 degrees six months post-surgery. As patients' range of motion improved, so did their quality of life.

"We are able to give a dramatic improvement in range of motion and pain with these ankle replacements," said Dr. Raikin. Patients' pain scores plummeted from 74 on a 100-point scale to 15 and their ability to complete everyday tasks shot up from 50 to 80 out of 100 over the two-year follow-up. What's more these improvements correlated strongly with enhanced ankle flexibility.

When the team analyzed surgical outcomes, they found that the critical recovery window happened much earlier than they thought. The first six months post-[surgery](#) were crucial, according to their data.

"The vast majority of the improvement patients get, they actually get in the first six months," said Dr. Raikin. "This is very important because we have to really motivate patients earlier on."

Patients' range of motion peaked at the 6-month mark with improvement slowing down from there for example. Pain and functionality followed the same trend. Dr. Raikin is now pushing his patients in their recovery earlier and quicker as a result of this study.

That said, patients do continue to improve both their range of motion and their [pain](#) and functionality until about 2 years. "So, if they're not where we expect them to be, they can still catch up," Dr. Raikin said.

More information: Benjamin A. Hendy et al. Improvement of Outcomes During the First Two Years Following Total Ankle Arthroplasty, *The Journal of Bone and Joint Surgery* (2018). [DOI: 10.2106/JBJS.17.01021](#)

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