Comparing Sports Activity Following Total Ankle Replacement Versus Ankle Arthrodesis

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Introduction/Purpose: Total ankle replacement (TAR) and ankle arthrodesis (AA) are two common surgical treatment modalities for end stage tibiotalar arthritis. A key deciding point between the two is anticipated functional outcome postoperatively, especially in regards to sports related activities. However, there is a paucity of data available to help advise patients in their decision making.

While TAR provides a theoretical benefit of improved functionality, the outcomes of several European studies have shown mixed results. These studies are limited by small sample size, obsolete TAR implants not used in the United States, and nonspecific outcome measures.

The purpose of this study was to compare postoperative sports activity levels following modern TAR and AA in a U.S. population, which may benefit surgical decision making and guide patient expectations.

Methods: We conducted a retrospective comparative study that consisted of patients who underwent a TAR (N=62) or AA (N=51) between 2009-2015. The mean age of the arthrodesis group was 57.7 years ± 12.12 (28.84-85.26). There were 27 male participants and 24 female participants. The TAR group had 31 male and 31 female participants with a mean age of 64.9 years ± 8.57 (45-79.6). Exclusion criteria included paralysis, rheumatoid arthritis, revision surgery, incomplete pre- and post-operative scores, and follow up less than 2 years. General health and foot-ankle function were assessed using the SF-12 Health Survey and the revised Foot Function Index (FFI-R) preoperatively and at final follow-up. In addition, activity levels were assessed using a Return to Activities Following Surgery questionnaire that was administered at final follow up. This form included a Visual Analog Scale for Pain, satisfaction questions, and a list of 25 activities. Patients were asked to record their current level of activity, ability to participate pre- and post-surgery, and whether their desired level was met. All three measurements tools were compared between both treatment groups.

Results: The SF-12 physical score both groups significantly increased postoperatively from 33.18 ± 10.37 to 43 ± 10.32 for AA's and from 32.88 ± 9.44 to 45.81 ± 12.94 (p < 0.001) for TAR's. The FFI scores showed a significant increase in both groups (p < 0.001). In the AA group, 88% of patients returned to work and would repeat the surgery, compared to 92% of patients in the TAR group. In terms of satisfaction and pain, the TAR group was more satisfied (1.78 vs. 1.44) and had less postoperative pain (1.32 vs. 2.56 p < 0.05). The AA group reported a significant increase in six activities including: golf (p < 0.05), weight lifting, and walking (p<0.001), while the TAR group reported significant increase in 15 activities, including hiking, tennis, and yoga (p<0.001).

Conclusion: Our study revealed a significant increase in general physical function, foot function, and activity level in both groups. The TAR group was able to perform a wider range of activity and sports compared to the AA group. Overall, TAR patients were significantly more satisfied with their procedure compared to AA patients.

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