

## **Revision Rates After Total Ankle Replacement: A Comparison Of Clinical Studies And Arthroplasty Registers.**

Orthopaedics / Foot & Ankle / Joint Replacement

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### **Background**

In order to offer a patient-customized therapy, considering the survival of an implant, quality of life and economic aspects, a surgeon needs to be familiar with the clinical results and revision rates of an implant. However, national joint registries report that total ankle replacement (TAR) contribute fewer than 1% of the total amount of arthroplasties performed. With a surgery being carried out that rarely and the fact that case-studies are often conducted in centers of competence using a single type of ankle prosthesis, one might get a restricted view on the realistic situation. Furthermore, publications exist, stating a more favorable outcome in studies conducted by implant-developers. This publication bias has raised doubts about the low revision rates in developer studies.

### **Objectives**

The aim of this study was to assess the outcome of total ankle replacement (TAR) regarding revision rates by comparing clinical studies of the last decade to data displayed in arthroplasty registers. The secondary aim was to evaluate whether dependent clinical studies show a superior outcome to independent publications. Additionally, revision rates of mobile bearing implants (MB-TARs) were compared to those of fixed bearing implants (FB-TARs).

### **Study Design & Methods**

Clinical studies on TARs between 2010 and 2020 were systematically reviewed with the endpoint being a revision for any reason. The parameter "revision rate per 100 observed component years (CYs)" was calculated for each publication. The pooled revision rate for clinical studies was compared to the data reported in arthroplasty registers. In a second step, revision rates were subdivided and analyzed for independent and dependent publications and for FB-TARs and MB-TARs.

### **Results**

A total of 43 publications met the inclusion criteria comprising 5,806 TARs. A revision rate of 1.8 per 100 observed CYs was calculated, corresponding to a 7-year revision rate of 12.6%. The three arthroplasty registers included showed revision rates ranging from 8.2% - 12.3% after 7 years. No significant difference between dependent and independent publications nor between FB-TARs and MB-TARs was detected.

### **Conclusions**

Revision rates of clinical studies and arthroplasty registers are comparable. Surgeons can compare their own revision rates with those from this paper. Dependent studies do not seem to be biased and no superiority for one bearing type can be described.