

Publikation	Arthrodesis Using an Intramedullary Modular Arthrodesis System after Failed Total Knee Arthroplasty after Up to 17 Years. Hetto P, Geisbüsch A, Lehner B. J Arthroplasty. 2025:S0883-5403(25)01093-9. https://pubmed.ncbi.nlm.nih.gov/40876662/ (online access)
Studie	Retrospective study
Implantate	Modular knee arthrodesis system KAM-TITAN (PETER BREHM GmbH): n= 30 MUTARS® RS arthrodesis implant (Implantcast GmbH): n=1
Patienten	n=31; n=22 female, n=9 male Mean age at the time of surgery: 68 years (range, 31-94) n=2 lost to follow-up
Follow-up	57 months (range, 2-208)
Methoden	Between 2002 and 2012, n=31 patients underwent a two-stage revision for periprosthetic joint infection (PJI). They were treated with a cementless modular knee arthrodesis system. This involved n=18 right and n=13 left knees. All patients met the definition of PJI established by the International Consensus Group. The primary objective of the study was to evaluate the revision rate, implant survival rate and limb preservation. Kaplan-Meier survival analysis was used to determine the endpoint of reoperation, revision and arthrodesis removal. The follow-up examination included clinical and functional results, using the Oxford Knee Score (OKS) and the Tegner Score. The visual analogue scale (VAS) was used to assess the patients' pain levels. Twenty-nine patients were available for clinical and radiological follow-up examinations. As a secondary objective of the study, postoperative gait analysis was performed on five patients using 3D gait analysis. To the authors' knowledge, this is the first study to investigate the effects of arthrodesis on the healthy contralateral limb.
Ergebnisse	Intraoperative microbiological cultures taken during arthrodesis were negative in all patients. In one case, a postoperative haematoma occurred, requiring surgical intervention to preserve the arthrodesis.

After arthrodesis treatment, six reinfections occurred, resulting in a reinfection rate of 19%. Arthrodesis preservation was possible in three cases after several reoperations. In two cases, the recurrent infection was treated with another two-stage revision and arthrodesis treatment. In one case, the arthrodesis was removed and a spacer implanted.

The mean Tegner score was 1.8 points (range, 0–3). The Oxford Knee Score was 23.4 points (range, 15–35). Although both results are suboptimal compared to the results of primary TKA, they illustrate the potential of patients in this cohort to regain a functional level of mobility in everyday life.

The mean VAS score for pain was 3.7 (range, 0-7) on a scale of 1 (no pain) to 10 (worst possible pain). The clinically assessed leg length difference at the final follow-up examination was 2.7 ± 1.5 cm (range, 1-6). The target leg length difference was between 2 and 3 cm to facilitate walking. Eleven patients used walking aids in their daily activities.

The mean bone defect measured on the anterior-posterior and lateral X-rays was 3.9 cm (range, 0.15–16). The bone defect was defined as the remaining distance between the most distal point of the femur and the most proximal point of the tibia after arthrodesis.

The 3D gait analysis revealed that the stiffened knee joint contributed in part to restricted movement in the contralateral knee joint. Overall, the stance phase of the stiffened knee was shorter than that of a healthy knee.

The Kaplan-Meier survival rate for all reasons for revision was 71.1% after 17.3 years. **The limb preservation rate was 100%.** No amputations were necessary.

For the endpoint of arthrodesis system revision, the Kaplan-Meier analysis showed a survival rate of 87.2% after 17.3 years.

The Kaplan-Meier survival rate for the endpoint of complete removal of the arthrodesis system, when neither preservation nor re-arthrodesis was possible, demonstrated a survival rate of 95.5% after 17.3 years.

Key Points

Periprosthetic joint infections can be successfully treated with arthrodesis using a modular intramedullary arthrodesis system. With the exception of one case, patients were treated with the modular cementless KAM-TITAN arthrodesis system from PETER BREHM GmbH.

Based on the results of this study, knee arthrodesis represents a suitable treatment option for complex or refractory infections of the knee joint.

Treatment with the arthrodesis system demonstrated a positive long-term implant survival rate, an acceptable reinfection rate, improved joint stability, reduced pain and an excellent limb preservation rate. This treatment option can offer patients an improved quality of life through pain relief and restoration of joint stability.

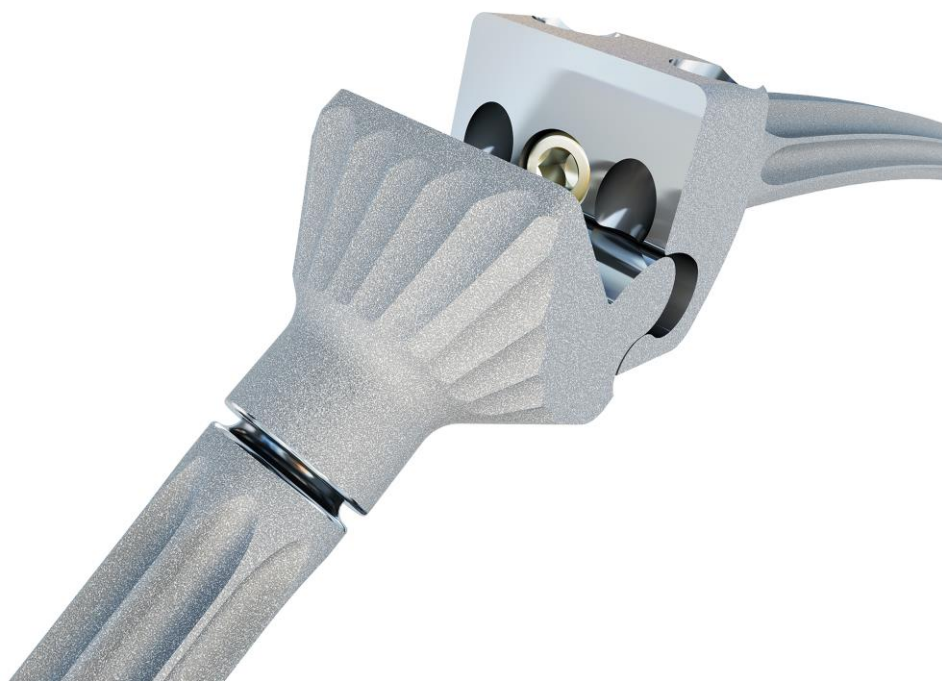
Positive results were achieved across the entire age spectrum in this cohort, suggesting that the **arthrodesis system can be used regardless of the patient's age.**

In most cases where limb preservation is the primary goal, implantation of a megaprosthesis is the only alternative to arthrodesis. Acc. to the authors, **megaprotheses are not a viable alternative to arthrodesis in septic cases** due to poor results with a reinfection rate of 43%*.

**Smith EL et al. Survivorship of Megaprotheses in Revision Hip and Knee Arthroplasty for Septic and Aseptic Indications: A Retrospective, Multicenter Study with Minimum 2-Year Follow-Up. Arthroplast Today 2020;6(3):475-479. <https://pubmed.ncbi.nlm.nih.gov/32637519/>*

Abkürzungen

TKA – Total Knee Arthroplasty



Modular cementless knee arthrodesis system KAM-TITAN