

Executive Summary

Publication	Knee arthrodesis versus above-the-knee amputation after septic failure of revision total knee arthroplasty: comparison of functional outcome and complication rates. Hungerer S, Kiechle M, von Rüden C, Militz M, Beitzel K, Morgenstern M. BMC Musculoskeletal Disorders 2017;18(1):443. doi:10.1186/s12891-017-1806-8 https://www.ncbi.nlm.nih.gov/pubmed/29132347 (PMC free full text)
Study	Retrospective cohort study. This is the first study comparing modular knee arthrodesis (MKA) and above-the-knee amputation (AKA) with access to modern orthotics performed after septic failure of revision TKA.
Implant	Modular knee arthrodesis KAM-TITAN (PETER BREHM GmbH)
Patients	81 patients treated with MKA and 32 patients treated with AKA after septic failure of revision TKA were included in this study. The mean age was 63 years in the AKA cohort and 69 years in the MKA cohort. The aim was to analyse the clinical course, functional outcome, quality of life and most common complication.
Follow-up	Time period between 2003 and 2012
Methods	Demographic data, comorbidities, pathogens and complications were recorded. The functional outcome was assessed with use of the LEFS and the SF-12 questionnaire.
Results	A loosening of MKA was observed in 8 cases (15%), a peri-implant fracture in 4 cases (7%), a technical implant failure in 1 case (2%) and reinfection in 12 cases (22%). An amputation had to be performed due to persisting or recurrent infection in 6 cases (11%). In 9 patients one rearthrodesis had to be performed due to periprosthetic fracture, loosening or reinfection. This was leading to a total number of 93 MKA in 81 patients. The overall implant survival rate for all 93 MKA was 86% after 1 year, 71% after 5 years and 61% after 10 years. Patients with MKA showed a tendency towards a lower postoperative death rate (4%) compared to patients with AKA (13%). A major complication occurred in more than one-third of the cases after AKA and MKA, whereas reinfection was the most common complication.

	In both cohorts was observed a comparable functional outcome and quality of life in average 53 months after MKA and 62 months after AKA. The good functional outcome of the AKA cohort may be explained by the fact that they showed a lower mean age when compared to the MKA cohort. A subgroup of younger 10 amputee patients could be fitted with a microprocessor-controlled-knee-joint and presented a significantly better functional outcome than other amputee patients or those who received a MKA. The age at amputation is significantly influencing the later functional outcome. In amputee patients increasing age at amputation was associated with a significantly lower functional outcome and quality of life at final follow-up examination ($p < 0.01$). Patients aged between 70 and 79 years had a mean LEFS of just 14 and all patients aged older than 80 years at amputation were lost to follow-up.
Key Points	In contrast to amputee patients, in patients with KAM-TITAN age did not influence the functional outcome. Recurrence of infection was the most common complication which occurred more frequently after AKA (35%) than after KAM-TITAN (22%). The implant survival rate of KAM-TITAN was considerably higher than literature data, which showed a survivorship of MKA of 50% and 25% at 5 and 10 years, respectively. According to the authors, for the daily clinical routine these data should be considered in the decision-making AKA versus MKA: Younger patients in a good physical and mental condition may benefit from AKA with proper orthotics, whereas in physically compromised older patients MKA seems to be the superior treatment.
Abbreviations	TKA - total knee arthroplasty, LEFS - Lower Extremity Functional Scale, AKA - above-the-knee amputation, MKA - modular knee arthrodesis

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