Biomechanical aspects of revision components for knee arthroplasty.

Total knee arthroplasty (TKA) is one of the most frequent orthopaedic surgical procedures. Despite continuous improvements in the endoprostheses, instruments, and operative techniques, revision TKA has a rate of about 10% of overall TKA. In addition to the restoration of the periprosthetic bone stock and a precise alignment, the choice of an adequate implant, which meets the patient's specific requirements, has high impact on the outcome. The most significant differences between implants involve the degree of reconstructed joint area (uni-, bi-, tri-compartmental) and the order of the constraining forces between the femoral and tibial component. Implants for revision TKA commonly range from un- or semiconstrained resurfacing implants to fully constrained hinged endoprostheses. In case of severe osseous, ligamentous, and/or muscular defects, special tumor endoprostheses or implants for arthrodesis might be an alternative option.