

Medial Unicompartmental Knee Arthroplasty and Alignment: Should We Correct to Neutral?

Isolated medial compartment osteoarthritis (OA) involves the degeneration of the cartilage of the medial (inside) compartment of the knee, often resulting in pain and stiffness. Medial unicompartmental knee arthroplasty (UKA) is a surgical procedure in which the inside, damaged part of the knee is replaced in order to ultimately relieve pain and improve function. In varus-aligned or bow-legged legs, pressure on the medial compartment of the knee is increased due to the angle of the femur (thigh bone) and the tibia (shin bone). This biomechanical angle can be altered during the medial UKA procedure to create a more neutral alignment; however, changes in alignment result in altered loading or weight-bearing of the knee compartments, possibly resulting in new or recurring problems. This study investigated the effects of pre- and postoperative femoral-tibial alignment on the clinical and functional outcomes of patients who had previously undergone medial compartment UKA.

Between 1999 and 2014, Dr. Plancher performed a medial UKA on 143 knees in 124 patients ranging in age from 55 to 75 years. Patients had OA in only the medial compartment of the knee and a varus alignment of less than or equal to 15° . Pre- and postoperative functional outcomes were measured by self-assessment questionnaires and clinical outcomes by physical examination and x-rays. The average time from surgery until last follow-up was 8.5 years. Overall, patients demonstrated excellent average postoperative scores on the functional questionnaires as well as improvements in average knee range of motion. Neither the degree of preoperative nor postoperative alignment significantly impacted functional outcomes. Intraoperative alignment changes averaged 2.5° less varus. Two patients (1.4%) developed pain on the lateral side (outside) of the knee and had revision surgery to convert their UKAs to total knee arthroplasty at 19 and 21 months, respectively. Patients in this study were able to return to high level sports including skiing, tennis, golf and running without concern of prosthesis failure up to 16 years after medial UKA. We recommend that an alignment correction of $2-3^{\circ}$ varus is sufficient to optimize outcomes. Medial UKA is an excellent option for properly selected patients with isolated medial compartment OA and varus alignment of less than or equal to 15° .