



### Does Accurate Anatomical Alignment Result in Better Function and Quality of Life? Comparing Conventional and Computer-Assisted TKA

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#### ABSTRACT

This is a randomized prospective controlled trial comparing the alignment, function, and patient quality-of-life outcomes between patients undergoing conventional (CONV) and computer-assisted (CAS) knee arthroplasty. One hundred and fifteen patients (60 CAS, 55 CONV) underwent cemented total knee arthroplasty.

Three patients were lost to follow-up. Eighty-eight percent (CAS) vs 61% (CONV) of knees achieved a mechanical axis within 3° of neutral (P = .003). Aligning femoral rotation with the epicondylar axis was accurately achieved in CAS and CONV with no significant difference.

Patients with coronal alignment within 3° of neutral had superior International Knee Society and Short-Form 12 physical scores at 6 weeks, 3 months, 6 months, and 12 months after surgery. Computer-assisted total knee arthroplasty achieves greater accuracy in implant alignment and this correlates with better knee function and improved quality of life.

#### SUMMARY

Patients in the navigated group report a significantly and increasingly better quality of life than non-navigated patients!

This is the first randomized controlled study to compare the alignment, function and patient quality-of-life outcomes between patients who underwent conventional and computer-assisted TKA. Patients with a mechanical axis within 3° (88% of Patients from CAS group and 61% of Patients from Conventional group) demonstrated superior outcomes in two independent functional scores (International Knee Society Score (IKS) and Short- Form 12 Score) at 6 weeks, 3 months, 6 months, and 12 months following surgery.

#### CONCLUSION

**Better mechanical alignment through CAS leads to better functional and patient quality-of-life outcome**

“(…) as a result of the proven positive correlation between the use of computer-navigation in TKA and accuracy of prosthetic alignment, we can also assert that computer-assisted TKA results in better function and quality of life for patients compared to conventional TKA”

#### **Benefit of CAS in knee surgery**

“Our results demonstrated for the first time significantly better functional scores using the IKS as early as 6 weeks postoperatively in patients with a mechanical axis within 3° of neutral”

(continued...)

### **Benefit in particular for obese patients**

“93% of our obese patients in the computer-navigated group had a postoperative mechanical alignment within 3° of neutral compared to only 56% of those in the conventional group”

### **Longer procedure time during CAS is justifiable**

“Indeed, we believe the extra 15 minutes [for CAS] to be justifiable if it resulted in better limb alignment.”