

Computer-navigated total knee replacement

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For many years, the use of computer-assisted navigation has been touted as improving the positioning, sizing and alignment of replacement knee joints, resulting in greater durability of joints and overall improvement in patient movement. However, new research published in the *Journal of Bone and Joint Surgery (JBJS)* found no difference in knee function, alignment or durability/survivorship between joints positioned and completed with the help of computer navigation, and those replaced with conventional total knee arthroplasty (TKA) procedures.

Researchers in Korea compared the results of 520 patients with osteoarthritis who underwent computer-navigated TKA for one knee and conventional TKA for the other knee. Patients included 452 women (904 [knees](#)) and 68 men (136 knees). Patients were assessed before surgery, and then at three months and one year following surgery, and annually thereafter, for 10 to 12 years (mean assessment duration: 10.8 years). Patients were assessed clinically using the Knee Society rating system and the Western Ontario and McMaster Universities [Osteoarthritis](#) Index (WOMAC) and, radiographically using X-rays or CT scans.

No statistically significant differences were noted between the computer-navigated and traditional procedure scores pertaining to knee function, pain, knee motion and activity, according to the study. In addition, the Knee Society and WOMAC scores were comparable for both procedures.

"Our mid-term follow-up data demonstrated no difference in clinical function or alignment and survivorship of the components between the

knees that underwent computer-navigated total knee arthroplasty and those that underwent conventional total knee arthroplasty," said Young-Hoo Kim, MD, The Joint Replacement Center, Ewha Womans University School of Medicine in Seoul, Korea.

Key Findings:

- Survivorship of the implants at 10.8 years after the operation was not significantly different: 98.8 percent in the computer-navigated TKA group and 99.2 percent in the conventional TKA group.
- The length of the incision, the intra-operative blood loss, the duration and volume of drainage, and the transfusion volume were not significantly different between the two groups.
- The mean operative time and time during which the surgeons used a tourniquet (a thigh band to minimize bleeding) were significantly longer in the computer-navigated TKA group than in the conventional TKA group.

"The effect of computer-navigated total knee arthroplasty compared with conventional total knee arthroplasty on long-term implant survival remains unproven," said Dr. Kim.

Provided by American Academy of Orthopaedic Surgeons

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