

## **Computer-Navigated Total Knee Arthroplasty With a Robotic-Collaborative Cutting Guide**

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This video demonstrates computer-navigated total knee arthroplasty with the use of a collaborative robotic cutting guide. As computer-navigated technology becomes more widely used in arthroplasty, several systems have emerged. The technique shown in this video involves the use of preoperative full-length standing radiographs to generate a three-dimensional model of the patient's knee. The surgeon creates a preoperative plan using this model, which can then be augmented with intraoperative bony landmark registration and registration of the patient's ligamentous laxity. These additional inputs augment the computer-generated model, providing accurate and real-time feedback to the surgeon. The surgeon can then use the model in combination with his or her surgical judgement to position the robotic cutting guide and accurately execute the surgical plan, with the surgeon making the bony cuts. In this manner, the surgeon retains the autonomy to adjust the component size, component position, margins of bony resection, angles of bony resection, and tibial slope in conjunction with the computer model with real time feedback. This video presents a case example of these techniques and reviews some of the literature supporting their use.