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Robot Assisted Total Knee Replacement

UNDERSTANDING NEW TECHNOLOGIES FOR KNEE REPLACEMENT

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Robot Assisted Total Knee Replacement

Total knee replacement is a proven and effective treatment for advanced osteoarthritis of the knee.

Robotic assisted surgery became available for total knee replacement in late 2018. It is the most accurate method available for positioning of a knee replacement.

Accurate positioning of parts and ligament tensioning has traditionally been difficult and contributes to early failure, poor knee function and patient dissatisfaction. Robotic assisted surgery is the only technique which allows preoperative planning and dynamic assessment during the operation to optimise knee replacement position, ligament balance and leg alignment prior to preparing the bone to position the knee replacement.

Balancing a knee replacement involves ensuring there is appropriate tension on all the knee ligaments throughout the full range of motion. This is very important for achieving full range of movement and a stable natural feeling knee. Traditionally this has been achieved by releasing or partially cutting the ligaments to accommodate the knee replacement after it has been positioned.

By allowing for ligament tension prior to preparing the bone, robotic assisted knee replacement eliminates the need to perform ligament releases to balance the knee. This should lead to a more natural feeling and functioning knee following knee replacement and greater patient satisfaction. It may also decrease post-operative inflammation and pain.

Poor prosthesis positioning and ligament balancing can lead to faster component wear and early failure of a knee replacement. Robotic assisted knee replacement is the most accurate method for planning and positioning implants for total knee replacement. It allows planning to within 0.2mm and positioning to within 1mm of this plan.

How It Works

- Patient gets pre-op CT
- The surgeon plans prosthesis position on 3D CT generated computer model
 - » 0.2mm accuracy
- During the operation the surgeon stresses the joint in different plains in multiple positions to determine ligament tension
- The surgical plan is modified to optimise the prosthesis position based on the ligament tension
- The robot assists the surgeon with bone preparation and prosthesis positioning
 - » Positioned to within 1mm of plan
 - » Surgeon and robot both hold the instruments



FIND OUT HOW A ROBOT ASSISTED KNEE REPLACEMENT CAN BENEFIT YOU

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