

From the Portland Business Journal:

<http://www.bizjournals.com/portland/news/2017/07/03/legacy-meridian-park-implements-robotic-knee.html>

Legacy Meridian Park implements robotic knee replacement procedure

Jul 3, 2017, 2:57pm PDT

Portland native Christine Poulsen got a new knee in April, thanks to what she calls "The Robot."

"The Robot" is a new robotic arm-assisted technology from medical technology firm Stryker Corporation. **Legacy Meridian Park Medical Center** was the first hospital in Oregon to implement the "Mako Robotic Arm-Assisted Total Knee Procedure" for knee replacements after orthopedic surgeon Christopher Nanson was selected by Stryker for the limited market release of the technology.

Nanson said the Mako Robotic Arm represents the "future of knee replacements." And though its impact on recovery has yet to be studied, Poulsen said she thinks her recovery after the new procedure has been quicker and easier than with her first knee replacement, which used the traditional method.

With the new technology, patients undergo a CT scan prior to their surgery that essentially creates a map of their bones, muscles and tendons. Then, using that image, the robotic arm's computer determines where best to do the incision and ensures that the implant is aligned properly.

"With the computer, you can virtually manipulate where the implant will go. Basically, you can virtually complete the surgery before you perform any bone cuts," Nanson said. "Now we really have a three-dimensional idea of how we need to put the knee in for each patient."

According to Nanson, traditional knee replacements have resulted in an 80-85 percent patient satisfaction rate, with a small percentage of patients requiring second "revision" surgeries. A quarter of those revisions are necessary because the implant is unstable, something that Nanson says the new technology essentially eliminates.

Though the process requires an extra visit for the CT scan, 10-15 extra minutes of operating time and costs a few hundred extra dollars, Nanson said it's worth it to avoid a second surgery, which cost around \$75,000 and 2-3 months' recovery time.

The robotic arm technology had been used for partial knee and full hip replacements, and builds on the traditional knee replacement process that's been used for the last 8 years. With the initial introduction in January and the full market rollout of the technology in March, Nanson has now done more than 70 knee replacements using the Mako Robotic Arm.



LEGACY MERIDIAN PARK MEDICAL CENTER

Dr. Christopher Nanson works with the new Mako Robotic Arm machine.

"It's a very good technology and it works very well for my patients," Nanson said, "so the ability to get my hands on this technology and deliver that accuracy for my patients is very exciting."

His patients are thankful for it, too.

Poulsen, a retired elementary school teacher, said her knee was making it impossible to walk up and down stairs even after she attempted physical therapy and losing weight. This was her second knee replacement, and she said she could tell a difference from her first after just a few post-operative physical therapy sessions.

"Everything picked up speed – at week three I was already at a six-week place in terms of recovery," Poulsen said. "There was much less swelling, much less bruising, just the healing time was greatly reduced. It's been nine weeks and I'm basically back to doing everything I want to do."

Nanson says the new technology is promising given the fact that by 2025, the projected volume of knee replacements will be more than 1 million per year in the U.S. alone; currently that number is between 400-500,000. Nanson said he also sees potential for applying the technology to shoulder or spinal replacement surgeries.

Currently, the Mako Robotic Arm process is being used at Legacy Meridian as well as at other Oregon hospitals in Bend and Medford.

"Stryker was the first to market this kind of technology, but every company has some kind of robotic technology in the works," Nanson said. "It's exciting to get to take advantage of the inventiveness and the innovations that we have coming forward in this field."

Clare Duffy

Staff Reporter

Portland Business Journal

