

Knee Replacement for Women

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Gender-specific research has led to breakthroughs in diagnoses and treatments for men and women in such areas as cardiovascular disease and, most recently, orthopedics. The latest orthopedic advance is a knee implant design that distinguishes between female and male anatomical differences, and allows for improved fit and fewer intraoperative adjustments.

And it is available at UMass Memorial Medical Center. Women account for nearly two-thirds of total knee replacements performed each year in the United States. For years, orthopedic surgeons have noted anatomical differences in men's and women's knees, and often had to make intraoperative adjustments during knee arthroplasty to accommodate these differences in women.

"In knee arthroplasty, the replacement joint is a metal implant made to cap the ends of the bone," explained David Ayers, MD, chair of orthopedics and rehabilitation at UMass Memorial. "Typically, the implant is made in multiple sizes and at UMass Memorial we stock all sizes that are made.

"To size the knee implant for each patient, we plot the anterior-to-posterior and medial-to-lateral dimensions of the distal femur," he continued. "For every anterior-posterior implant size, there is a corresponding medial-lateral size. But we consistently found that women's distal femurs are not as wide as men's, even when the anterior-posterior measurement is the same. As a result, we essentially would have to shape the patient to fit the implant."

"Now, however, with the development of the Zimmer® Gender Solutions™ NexGen® High-Flex Knee, we have a knee replacement that is specifically designed to fit the female femur geometry," he added. "For women whose anatomy would benefit from this implant, we offer it at UMass Memorial. In fact, our Medical Center was the second hospital in Massachusetts to offer this technological advance."

Research also shows that women have a higher Q-angle (the angle between the rectus femoris and the patellar tendon), which appears to increase their risk of patellar maltracking following total knee arthroscopy. The new gender-specific implants replicate the distinct Q-angle difference by increasing the trochlear groove angle of the implant and improving the fit of the new knee.